THE UNESCO
# Courier
October-December 2021

# Stories of MIGRATION

- **Nigerian migrants:** Pursuing the dream at any cost
- **Peru** faces a surge of climate migrants
- The long history of the **Overseas Chinese**
- "The history of humanity is made up of a **succession** of **migrations**"
  An interview with Eva-Maria Geigl

**IDEAS**

**Open Science:** A global movement catches on

**OUR GUEST**

**Latin America:** The golden age of dinosaurs ▪ An interview with palaeontologist Miriam Pérez de los Ríos

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THE UNESCO Courier

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## Editorial

Families forced out of their homes by war, makeshift camps on the outskirts of cities, survivors of perilous sea crossings – news channels have become used to trivializing images of migrants, who are too often reduced to an archetype of contemporary misfortune. These news items reflect very real situations, like those currently being experienced by civilians trying to flee Afghanistan.

The tragic side of migration, however, far from summarizes the complex, plural, and changing reality of this major twenty-first century phenomenon. In 2020, the International Organization for Migration (IOM) estimated that the number of international migrants worldwide was 272 million. These people left their home countries to flee violence, natural disasters, or the effects of climate change – but also to study, work, and invent a new life somewhere else.

This figure, which continues to rise, is frequently exploited by those who use it as a political weapon, to argue that migrants – convenient scapegoats for the fears and frustrations of host communities – pose a real threat. These fears are exacerbated during a pandemic, fuelled by preconceived notions and prejudices about migrants, which serve to obscure well-established data – particularly that population movements primarily occur between low- and middle-income countries, and that nearly half of all migrants do not cross borders.

These prejudices also fuel rejection, racism, and even discrimination, against the new arrivals. Women are particularly penalized. It is precisely to encourage living together and to reduce this kind of discrimination that UNESCO set up the International Coalition of Inclusive and Sustainable Cities (ICCAR).

The Organization is also keen to remind us that behind the dry statistics, there are thousands of human destinies, countless stories – sometimes terrible, often happy – and the richness of a cultural mix that is part of our lives and our collective history.

Does the term migration still mean anything in our globalized societies, which are characterized by an intensification of exchanges and travel, where "somewhere else" is now within reach of many people?

In *Le Métier à métisser,* the Haitian writer René Depestre invites us to rethink the very idea of exile: "The process of globalization is a call to render outdated and obsolete the belief that, to have an identity, one must stay at home, smelling the aroma of one's grandmother's coffee."

**Agnès Bardon**

# Stories of MIGRATION

Sans titre VII, Polyptych detail, 2006 © Anabell Guerrero

◥ *Details of faces and hands are the only fragments of identity visible in the series* **Voix du Monde / Délocalisation** *(Voices of the World/Relocation), 2006, polyptych by French-Venezuelan artist Anabell Guerrero.*

**Agnès Bardon**

UNESCO

For the first time in many years, the increase in the number of international migrants slowed down in 2020. This slight downturn can be explained primarily by the restrictions on movement linked to the Covid-19 pandemic – the flow of migrants has otherwise been steadily growing for decades. In 2020, 281 million people were living in a country in which they had not been born. This figure has increased from 173 million in 2000, and 84 million in 1970.

Then, as now, people leave their home countries to escape poverty, to build what they hope will be a better life. Often, they leave their families behind to find a new future. The main migration corridors that have formed over time still connect developing countries to industrialized ones – the United States, Europe, the Russian Federation, and Saudi Arabia.

Increasingly, people are also leaving their countries to escape conflict and violence. In 2020, refugees and asylum seekers accounted for twelve per cent of the total number of migrants, compared to 9.5 per cent two decades earlier. Between 2000 and 2020, the number of people forced into exile by war, crisis, or persecution doubled from 17 million to 34 million, according to the United Nations Department of Economic and Social Affairs (DESA). The effects of climate change – including water shortages, land impoverishment, and coastal erosion – are also driving up the numbers of people fleeing their homes.

In response, the UN adopted the Global Compact for Safe, Orderly and Regular Migration in 2018. Its objective is to improve the situation for migrants internationally, and to encourage co-operation in the field of migration. The agreement also emphasizes that states must provide assistance to migrants travelling on dangerous routes.

The plight of many migrants – especially illegal ones, who are at the mercy of human traffickers – includes exploitation, racketeering, and violence. Some pay for the journey with their lives. In the first quarter of 2021 alone, 1,146 people died at sea while attempting to cross the Mediterranean.

For those who make it, the reality in the host country is often far removed from the life they had dreamed of – many migrants face prejudice and even discrimination. In a deteriorating economic context marked by uncertainty, the arrival of new populations is sometimes perceived as a threat, fuelling fears and frustration.

That the reality is more complex and nuanced than it appears is often forgotten. While the number of migrants may seem high, they only represent 3.5 per cent of the world's population – which is far from the surge that some describe. Besides, the vast majority of migrants move within their own →

## **Reporting on migration:** A handbook for journalists and educators

Migration and forced displacement are among the most challenging topics for the media to report on today. To the extent that journalists and news organizations are sometimes reluctant to tackle these complex and sensitive issues.

A UNESCO handbook, *Reporting on Migrants and Refugees: Handbook for Journalism Educators*, published in 2021, helps journalism educators address these issues. It provides a wealth of open-access resources, theory and case studies from across the globe to promote a better understanding of migration issues, and to encourage a more balanced and informed public debate.

Developed by an international group of media researchers, educators and practitioners, the handbook presents a comprehensive curriculum for journalism educators through thirteen modules. These include key terms, context, professional challenges, best practice, dealing with trauma (of migrants and refugees, but also of the journalists who cover them), cross-border collaboration, and how to pitch migrant and refugee stories.

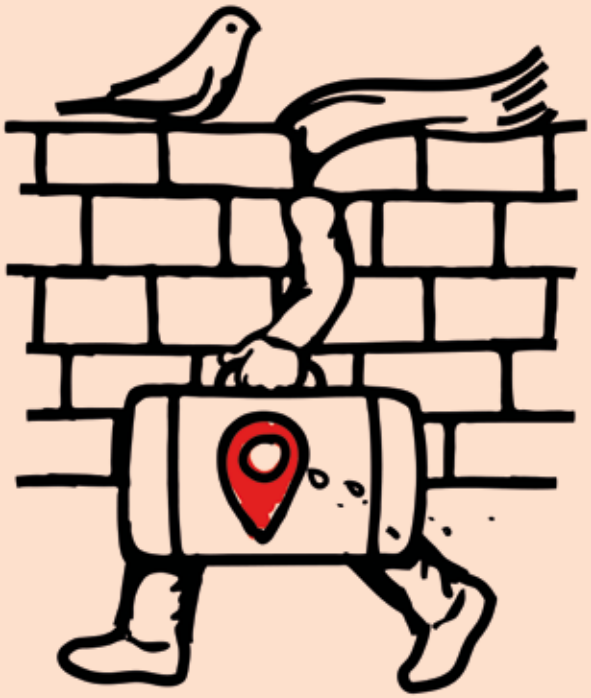
Journalism students using the guide will learn that migration stories are, above all, human stories, and require ethical reporting, accurate facts and reliable sources. Practising journalists can use the handbook to improve their reporting, and to resolve their own challenges when they cover migration.

continent. In 2020, nearly half of all international migrants resided in their native region.

The fact that the displacement of populations has always been a part of human history is also overlooked. The oldest known human or pre-human presence outside Africa dates back over 2 million years.

Above all, the fact that there are always human destinies and life stories – sometimes dramatic, often happy – behind the dry statistics is often ignored. And that, out of this mingling of cultures, success stories in the worlds of business, sport, music, and scientific research, have emerged.

In the long term, the contribution of migrants is usually an asset for host societies. This is not something that a non-governmental organization is claiming. The Council of Europe, in a 2017 report, *Migration as an opportunity for European development*, stated that "migrants bring diversity to European countries, contributing to cultural exchanges and having an important impact on arts, sports, fashion, media and cuisine." ■



© Alireza Tabouk - posterfortomorrow - 2017

◥ Freedom of movement is a human right, *by Iranian graphic artist Alireza Tabouk.*

## **GLOBAL MIGRATION,** BY THE NUMBERS

**272 million**
International migrants in the world in 2019

**3.5 per cent of the world's population**

52 per cent were male

**Main countries where international migrants primarily originate:**

- India: 17.5 million
- Mexico: 11.8 million
- China: 10.7 million

**Main country of destination for migrants:** United States

**25.9 million**
Global refugees in 2018

**41.3 million** Internally displaced persons due to violence and conflict at the end of 2020

**$689 billion**
**Total international remittances in 2018**

**Top recipients of remittances:**
- **India:** $78.6 billion
- **China:** $67.4 billion
- **Mexico:** $35.7 billion

**Top countries sending remittances:**
- **United States:** $68 billion
- **United Arab Emirates:** $44.4 billion
- **Saudi Arabia:** $36.1 billion

Source : *World Migration Report* 2020, International Organization for Migration (IOM).

# Nigerian migrants:
## Pursuing the dream at any cost

Why are more and more young Nigerians choosing to leave their country? Growing unemployment, the lack of opportunities, the attraction of an idealized West, and the ignorance of the dangers of illegal immigration explain this massive exodus.

**Lanre Ikuteyijo**

Senior Lecturer at the Department of Sociology and Anthropology, Obafemi Awolowo University, Ile-Ife, Nigeria.

Nigerian youth constitute one of the largest populations among migrants travelling from countries of the Global South to Europe. Why are these young people deciding to leave their country? Are they aware of the dangers they may encounter en route? These questions formed the basis for my study, Irregular Migration as Survival Strategy: Narratives from Youth in Urban Nigeria, published in 2019.

Carried out in four major Nigerian cities – Lagos, Ibadan, Ile-Ife, and Benin City – chosen for their characteristics in relation to irregular migration, the study focused on 15- to 35-year-olds. All those interviewed were susceptible to irregular migration – they were either unemployed, in their final year of tertiary education, or engaged in the compulsory National Youth Service Corps.

The young people who fell into one or more of these categories expressed fear of the future, and viewed migration as a survival strategy to escape an existence of poverty and powerlessness. The study also included youth who had left the country and then returned – either voluntarily, or because they had been deported.

> **“In 2020, 53.4 per cent of young Nigerians were unemployed**

The first lesson learned was that most of these youth were unfamiliar with formal, legal immigration processes. More than half of them did not own valid passports, a minimum requirement for safe and legal international migration. They knew, however, that it was possible to migrate illegally, or, as they say in Nigeria, “travelling to Europe by road”. Most of them knew someone who had left the country illegally, using forged travel documents, or the services of human traffickers or smugglers.

The consensus was that “the end justifies the means”. Most of the youth did not consider irregular migration a crime, but a practical solution that was “diplomatic” or “smart.” Their strong motivation to migrate meant they failed to see the risks of an illegal journey, making

© Osama Hajjaj / Cartoon Movement

◥ African immigration to Europe, *by Jordanian cartoonist Osama Hajjaj, for Cartoon Movement, a global platform for editorial cartoons based in the Netherlands.*

them easy prey for human trafficking cartels.

## An idealized vision of life abroad

An "imagined West" – an idealized view of life in western countries – is often at the heart of the immigration plan. Respondents generally believed that those who had successfully migrated enjoyed a better quality of life. "Those who migrate outside the country often live far better than we do in Nigeria. They have constant power supply, better weather, eat a good diet, and are relatively safe," said Saturday*, a 29-year-old unemployed woman.

Their attitudes were also influenced by radio, television, music, and other popular culture and media portrayals of destination countries. "Been to", the popular term for people who have visited foreign continents, especially Europe and America, conferred a level of social status. A returnee migrant at a social gathering was seen to add glamour and prestige.

Information about destination countries – which was often exaggerated or inaccurate – came from informal sources like friends, relatives, and social media.

## **Africa: Using rap to highlight the dangers** of irregular migration

The video clip from *Prévenue* (Warned), released to mark International Migrants Day on 18 December 2020, was a big hit in Senegal. It features the rapper Xuman warning hip-hop artist Mamy Victory of the risks of choosing to immigrate on irregular migration routes.

The video is part of the Empowering Youth in Africa through Media and Communication project, an awareness-raising campaign by UNESCO in West and Central Africa. The goal is to provide young people with fair and balanced information on migration issues, and on the discrimination that migrants face in the context of the Covid-19 pandemic.

The two-week campaign involved relaying videos, cartoons, audio and visual messages on social media networks and in local media in eight countries – Cameroon, Côte d'Ivoire, Ghana, Guinea, Mali, Niger, Nigeria and Senegal. Besides French and English, content was produced in twenty official and national languages – including Baule, Fanti, Malinke, Yoruba, and Wolof.

The videos featured were the result of two writing workshops on the theme of migration organized in Dakar, Senegal, and Niamey, Niger, in October and November 2020. Held in collaboration with Senegal's Association Africulturban and Niger's Global Actions Forum, the workshops were attended by journalists, experts, artists, and migrants. The campaign attracted nearly 6 million views and 300,000 engagements across digital platforms during its fifteen-day run.

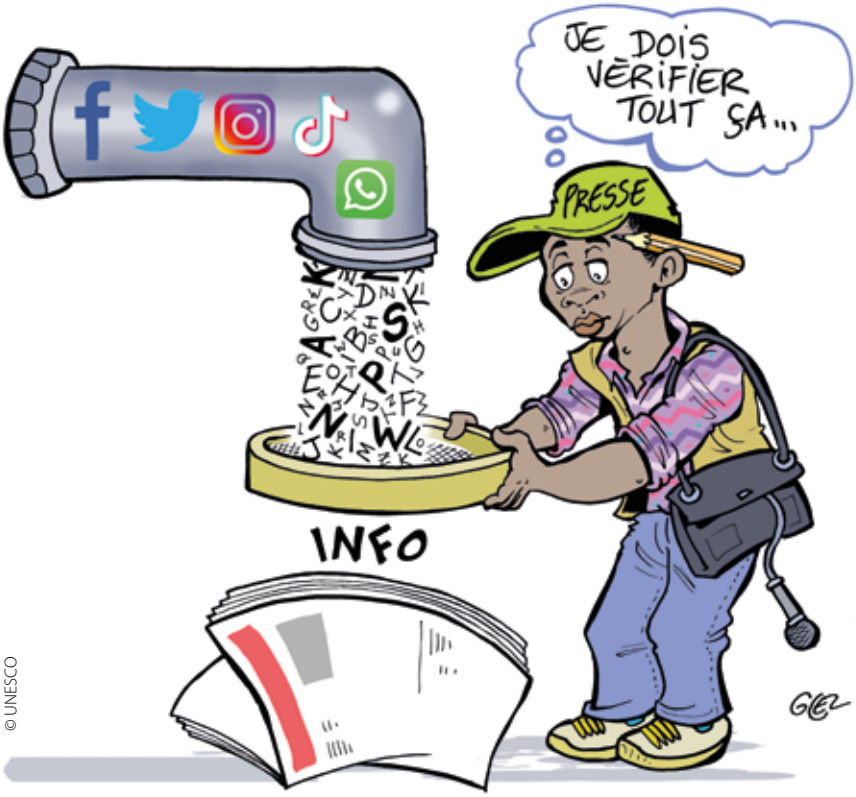
© UNESCO

◥ *A video clip of* Prévenue, *by rappers Xuman and Mamy Victory, warning of the perils of illegal migration. The clip gained 235,000 views on UNESCO/Dakar's YouTube page.*

## Endemic unemployment

Nigeria's economy and high levels of youth unemployment push people to seek better opportunities, jobs and security. In 2020, the country's National Bureau of Statistics reported that 53.4 per cent of young people were unemployed. According to 2021 data from the World Poverty Clock, an estimated 86 million Nigerians, or forty-one per cent of the population, live in extreme poverty.

These economic realities, coupled with other variables such as political instability, rising waves of conflict – and now, the effects of the Covid-19 pandemic – have led to an increasing number of youth in certain categories leaving Nigeria for other countries perceived to hold greater promise.



© UNESCO

*"I have to check all this out," by Damien Glez, one of ten drawings by the French-Burkinabe cartoonist for UNESCO's Empowering Youth in Africa through Media and Communication campaign, 2020.*

> **Most of the youth did not consider irregular migration a crime, but a practical solution that was 'smart'**

Most respondents who left Nigeria illegally said they were completely unaware of what lay ahead. Many of those who came back recounted horrendous stories of their attempts to reach Europe. Jessica, a 30-year-old woman who had returned from Italy, reported that six of the girls she had travelled with, died at sea. A hundred and sixty girls were transported in three ships. Two of the ships developed mechanical faults in the middle of the sea, and six girls died before the ships could be rescued. The surviving girls were eventually picked up by prospective patrons or employers, illicit or otherwise, when the ship finally berthed in Madrid, Spain.

The growth and development of any nation largely depends on its human capital development, often encapsulated in training and education. The public education system in Nigeria is fraught with regular episodes of industrial action by academic and allied workers. This contributes to a loss of confidence in these institutions, and disruption in education. As a result, young people seek opportunities to study outside Nigeria.

## Educating youth on illegal migration

This often leads to a form of step migration, where most students would rather remain in destination countries, to seek greener pastures at the end of their studies, than return home. Jessica was lured by traffickers who promised her the better prospect of an uninterrupted education abroad. "During the first-term holidays in secondary school, a family friend told my parents that he would take me to Italy to continue my education. My parents succumbed to the idea because they felt that in Italy my education would be unhindered." She later realized that she had been deceived, and returned home.

Understanding the reasons these young Nigerians are susceptible to migration may lead to policy solutions. Nigeria must bridge inequality, create employment, and guarantee security for its population, so that young people do not want to leave. Programmes and activities should educate youth on the dangers and pitfalls of irregular migration – demystifying both the life of an irregular migrant, and the reality of living in destination countries. Secondary school curricula should include information on the rights of migrants and international migration procedures.

Nigeria must promote and build a youth-friendly economy, where enterprising young people are given the financial and practical support they need. Each of these interventions is vital to ensure that the country retains the army of skills and the capacities embodied in its youthful population.

*All names have been changed to protect the identities of those who participated in the study.

Widespread preconceived notions about refugees from Africa – that they are all potential candidates for immigration to Europe, North America, or Australasia; that host societies are always hostile to migrants; that refugees would inevitably create competition for the scarce jobs needed by the citizens of their host community – are largely refuted by field studies.

# Refugees: Overcoming prejudices

**Alexander Betts**

Professor of Forced Migration and International Affairs at the University of Oxford, United Kingdom.

Today there are more people displaced by persecution, conflict, and other crises than at any time since the Second World War – 82.4 million, with 26 million having crossed a border as refugees. However, amid the politicization of asylum and immigration, in both rich and poor countries, refugees increasingly face challenges of accessing international protection.

Part of the problem stems from misinformation. The media and politicians sometimes distort public perception, portraying refugees as an inevitable burden on receiving communities.

In my recent book, *The Wealth of Refugees: How Displaced People Can Build Economies*, published in 2021, I argue for an evidence-based approach to refugee policy. Drawing upon extensive qualitative and quantitative research in East Africa – including an original survey of more than 16,000 refugees and host community members in camps and cities in Ethiopia, Kenya, and Uganda – I argue that given inclusive policies, it is possible for refugees to be, and be perceived to be, contributors to their host communities. I draw upon that research to challenge five popular myths about refugees in Africa.

## Mobility

### "Refugees in Africa will all come to Europe"

In rich regions of the world, there is a common perception that all refugees want to travel to Europe, North America, or Australasia. The reality of refugee mobility is quite different. Eighty-six per cent of refugees are hosted by low- and middle-income countries, and nine out of ten of the leading refugee countries are in the global South.

It is true that aspirations to move to rich countries are great. But many also acknowledge that this is unrealistic. For example, in Addis Ababa, more than ninety-five per cent of refugees hope to move on to a third country. However, more than half recognize that this is likely to be unrealistic in the near future.

In Kenya, although a significant number of refugees do change their residency in a given year, the majority of movement is internal. For those moving internationally, most movements are either within East Africa to neighbouring Uganda, or through organized relocations such as repatriation or resettlement. Only a tiny proportion – far below one per cent per year – are moving inter-regionally to Europe or other rich countries.

The implication is that we need to recognize that most refugees are – and will continue to be – hosted by low- and middle-income countries in their regions of origin.

## Social Cohesion

### "Host communities are inevitably hostile to refugees"

There is a common assumption that receiving communities inevitably regard the presence of refugees as a burden. Yet, given the right policies, refugees are sometimes regarded positively. In some remote border regions, the presence of refugees and humanitarian organizations may be one of very few sources of jobs and markets.

For the local Turkana community of Kenya, for example, the presence of the Kakuma refugee camps offers a market for their firewood and livestock, employment opportunities, and access to schools and clinics.

© UNHCR / Samuel Otieno

◥ *A woman from Turkana (left) and her friend, a refugee from South Sudan, at the Kalobeyei Integrated Settlement in north-west Kenya.*

Across our focus countries, we have found that what matters most to host communities is the quality of economic interaction. The people with the most positive attitudes towards refugees tend to be those who benefit economically from their presence. We have also found that contact makes a difference – higher levels of intergroup interaction are strongly associated with more positive host community attitudes, particularly in cities. Furthermore, most people's attitudes towards refugees are strongly correlated with those held by their families and neighbours – suggesting that attitudes are formed within immediate communities.

The implication is that host communities can be welcoming towards refugees, and there are policies that can be adopted to strengthen inclusion. Put simply, refugee policies also need to support host communities, and the relationship between refugees and hosts.

## Right to Work

### "Host countries lose by letting refugees work"

Refugees have socio-economic rights under international refugee and human rights law. These include the right to work and freedom of movement. However, many refugee-hosting countries impose restrictions on these entitlements. They do so because they believe that allowing refugees to work will create tension with the host community.

The result is that refugees in countries such as Kenya and Tanzania have to remain for many years in refugee camps, without access to employment. The evidence suggests this has negative consequences for refugees' rights and well-being, and that it may also be bad for host countries.

Uganda is one of the few African countries to allow refugees to work and choose their place of residence. This approach has significant benefits for refugees. Refugees in Uganda have sixteen per cent higher incomes than refugees in neighbouring Kenya.

There is some evidence that such policies benefit not only refugees, but also host country citizens. For example, in Kampala, the Ugandan capital, we found that some twenty-one per cent of refugee households have a business that employs at least one other person, and that forty per cent of their employees are host nationals. For many Ugandans, refugees contribute to the economy as producers, consumers, and entrepreneurs.

→

# Definitions

## **Migrants, refugees,** or **displaced** persons?

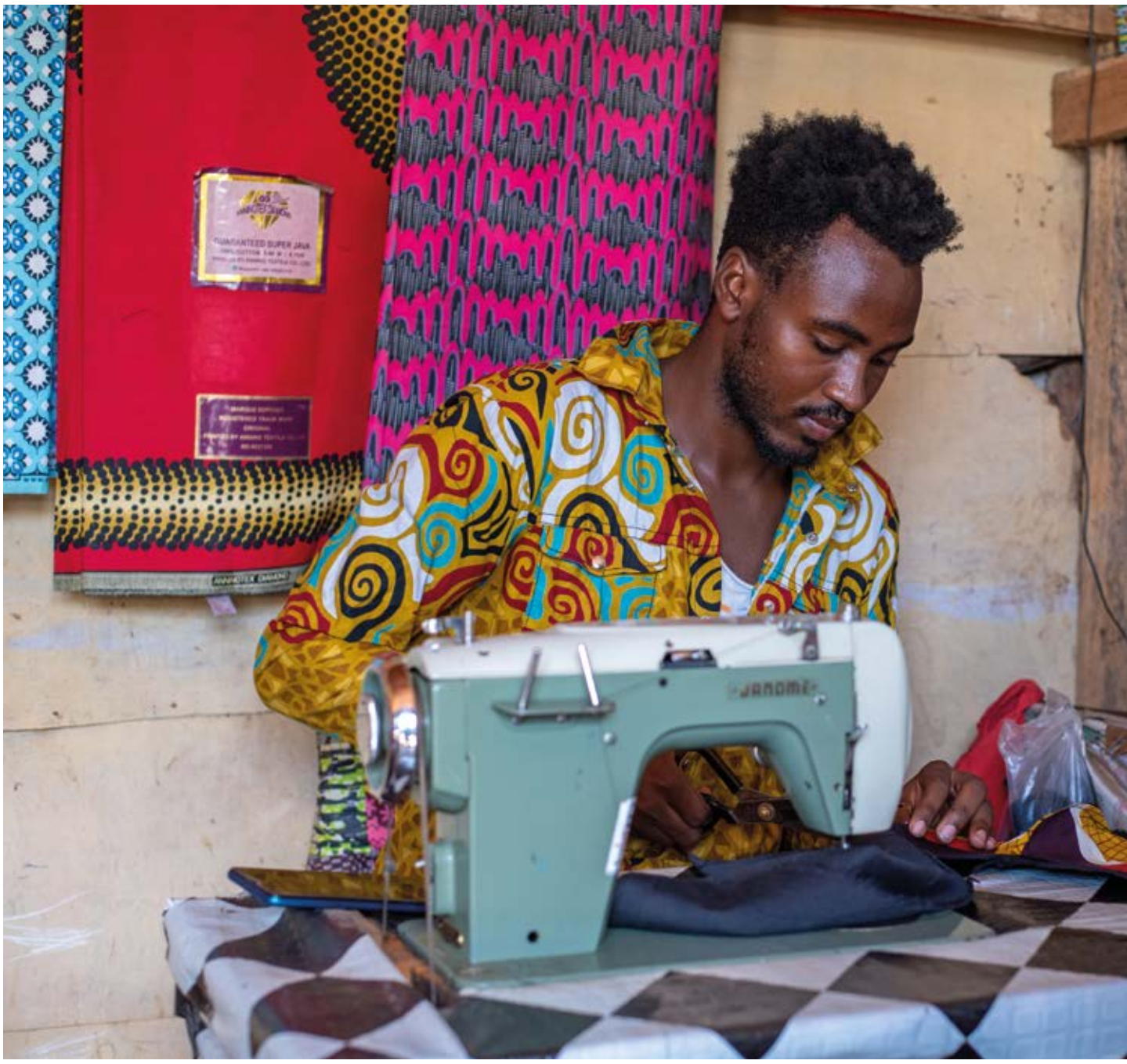
**Migrant:** There is no legally accepted definition of the term "migrant" at the international level. According to the United Nations' International Organization for Migration (IOM), it refers to "any person who has resided away from his or her place of usual residence, whether within a country or across an international border, regardless of the person's legal status; whether the movement is involuntary or voluntary; what the causes for the movement are; or, what the length of the stay is." However, it is common to include certain categories of short-term migrants, such as seasonal agricultural workers, who migrate at planting or harvest time.

**Refugee:** As defined by the 1951 Geneva Convention, the term applies to "any person who, owing to a well-founded fear of persecution for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his or her nationality… and is unable or, owing to such fear, is unwilling to return to it".

**Displaced persons:** Persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters. This definition covers both internal and cross-border displacement.

**Asylum seeker:** An individual who is seeking international protection. According to UNHCR, the UN Refugee Agency, the term is used to define "someone whose request for sanctuary has yet to be processed."

Source : *Glossary on Migration*, International Organization for Migration (IOM)




© UNHCR / Samuel Otieno

*Maombi Samil, a 24-year-old refugee from the Democratic Republic of the Congo, makes face masks at his small business in Kenya's Kakuma camp.*

The implication is that we need to actively promote – and incentivize – the right and opportunity for refugees to work, no matter where they are in the world.

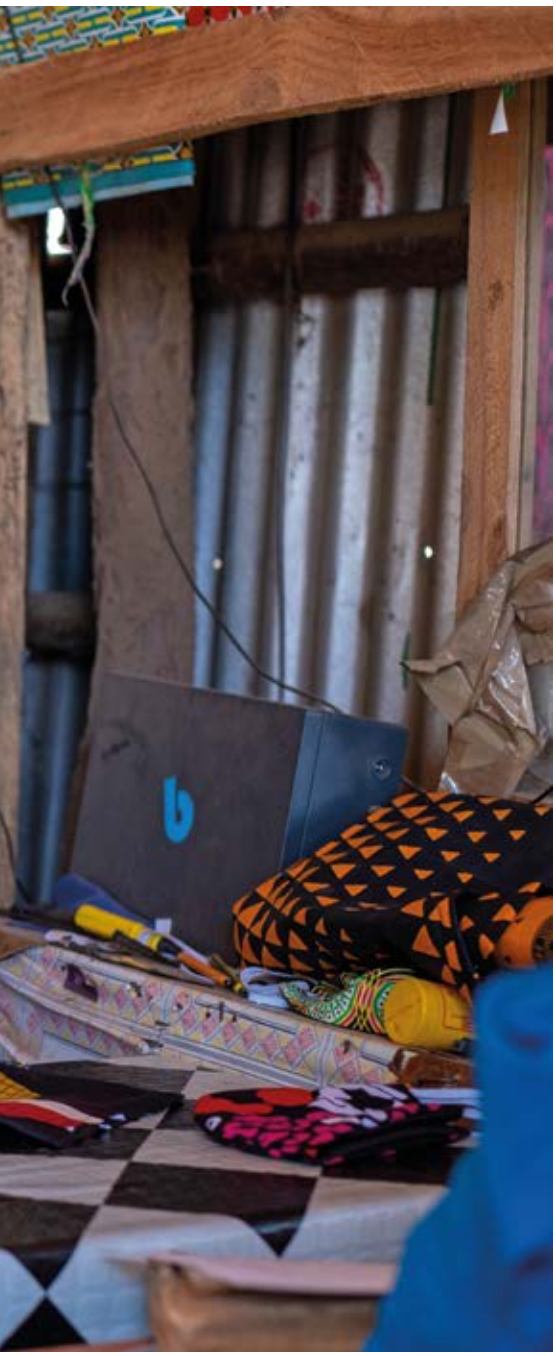
## Cities versus camps

### "Refugees are always better off in cities than in camps"

Reflecting the broader global trend in urbanization, most refugees are now in cities. However, this is not the case in sub-Saharan Africa, where the overwhelming majority of registered refugees are in camp-like settings. According to UNHCR, the UN Refugee Agency, just sixteen per cent of Kenya's refugees are in the capital, Nairobi; six per cent of Uganda's are in Kampala; and four per cent of Ethiopia's are in its capital city, Addis Ababa. The urban-rural distribution reflects government restrictions, the relative availability of assistance versus employment, and the preferences of refugees.

The composition of urban and camp cohorts is generally different. Those in cities tend to be older and male, and those in camps tend to be younger and female. Sometimes refugees divide their families, with those able to work moving to the city, and those with assistance needed or care responsibilities remaining in the camps.

Our research in East Africa reveals three key insights. First, refugees earn more, own more, and work more in the city, but are not necessarily happier, healthier, or better fed than those who live in camp-like settings. Second, host communities are generally more positive towards refugees in rural than urban settings. Third, there is temporary and permanent



movement between camps and cities in both directions.

The implication of these insights is that neither urban nor rural residency is inherently better for refugees than the other. Each option represents a constrained choice with relative pros and cons. Refugee policies need to focus on improving access to entitlements in both urban and rural contexts.

## **Immigrant Nobel laureates** lead the way

© Paramonov Alexander/Shutterstock

Since 1969, when the Nobel Memorial Prize in Economic Sciences was first awarded, the majority of Nobel prizes have gone to institutions in the United States. However, the scientists behind the cutting-edge research have often been expatriates from all over the world. Out of the 281 laureates who were exclusively affiliated with the winning US institutions, eighty-seven were born abroad, according to the Nobel Prize Foundation,

This trend can be observed in other countries as well. Since 1969, fifteen out of forty-five laureates representing institutions in the United Kingdom were born abroad. The largest number of foreign laureates can be found in Switzerland, with eight foreign-born laureates to seven Swiss-born laureates. Countries whose institutions made it to the top ten without the help of immigrant scientists are Japan, with fifteen homegrown laureates, and Sweden, with eight.

The high percentage of immigrant and expat Nobel prize winners can mainly be attributed to research institutions attracting scientists from across the world. According to the 2021 *UNESCO Science Report*, the G20 countries accounted for almost eighty-nine per cent of the world's researcher population (in full-time equivalents).

The biggest shares can be found in the European Union (23.5 per cent), China (21.1 per cent), and the US (16.2 per cent). In some cases, the researcher population has grown faster than research expenditure, resulting in a struggle for project funding. This could lead to a brain drain.

> **Eighty-six per cent of refugees are hosted by low- and middle-income countries**

## Politics

### "Refugee assistance is entirely humanitarian"

Refugee protection and assistance are often viewed as purely humanitarian acts. International law and advocacy certainly play an important role in shaping refugee protection. However, it is also important to recognize that refugee assistance takes place in the context of complex and often ambiguous politics.

The politics of refugee rights is evident in examining what motivates even the most progressive and generous refugee-hosting countries. For example, Uganda's widely praised self-reliance policy needs to be understood in a historical or political context. Far from being a recent creation, it has emerged over time with the support of successive presidents.

The implication is that international humanitarian organizations need to be aware of the political context in which refugee protection takes place. Rather than simply relying upon advocacy, different strategies and incentives are needed to promote refugee rights in different countries.

With more than 3,000 kilometres of coastline and ecosystems that are particularly vulnerable to the effects of climate change, Peru is one of the countries in the world where natural events and human mobility are strongly correlated.

# Peru faces a surge of climate migrants

**Laura Berdejo**

UNESCO

Between 2008 and 2019, around 656,000 of Peru's 33 million inhabitants were forced to move because of natural disasters, according to the Internal Displacement Monitoring Centre (IDMC). It is estimated that by 2100, these movements could reach unprecedented levels, as the frequency and intensity of environmental hazards are expected to skyrocket.

"The key word here is *huaico*", explains Liliana Márquez, a camerawoman for a television channel in Lima. "That's what we call the flash floods caused by torrential rains that originate from the El Niño phenomenon, almost every summer. These have now become recurrent in a country where the first major climate-related population movement dates back to the eighteenth century, when the Zaña river overflowed and the entire city had to migrate."

The El Niño Southern Oscillation (ENSO) is the most consequential driver of natural climate variability in Peru. Characterized by warming (El Niño) and cooling (La Niña) events of the ocean surface temperature in the Pacific, the phenomenon causes atmospheric

© Benjamin Morales Arnao

changes that can profoundly affect the climate – particularly rainfall patterns.

Its most recent coastal occurrence, in 2017, led to nearly 300,000 people being displaced. But beyond the El Niño phenomenon, each of Peru's three ecosystems is exposed to specific risks that are capable of contributing to massive waves of migration.

## Natural risks on the rise

While the inhabitants of the *costa* – the coastal region where most of the country's population and economy are concentrated – suffer the full effects of ENSO, they are also affected by recurring droughts, periods without rain and, to a lesser extent, high and extreme temperatures, forest fires, and strong winds.

In the *sierra*, the highland region, most of the meteorological hazards are linked to water – although exposure to high temperatures and extreme heat in some areas, and extremely cold and freezing temperatures in places such as Cuzco, also predominate.

One of the greatest dangers here is the retreat of glaciers, the acceleration of which could cause the migration of twenty-eight per cent of the inhabitants of the highlands, and also threaten one of the country's principal fresh water sources.

Finally, the *selva*, with its rainforests, is experiencing an increasing number of large-scale floods. At the other extreme, there are severe droughts, riverbank collapses, erosion, deforestation, and the risks of extreme heat stress.

In a country where the poverty rate is more than twenty per cent, and where social inequalities have increased considerably due to the pandemic, these environmental threats further accentuate the socio-economic vulnerability of the population.

According to a 2021 assessment of Peru by the Potsdam Institute for Climate Impact Research (PIK), and the International Organization for Migration (IOM), half of Peru's national territory is exposed to recurring hazards, and one third of the population uses exposed space. More than 9 million people are exposed to heavy rains, floods, flash floods and landslides, 7 million to low and very low temperatures, and almost 3.5 million to droughts.

In the worst-case scenario of global warming of over 4 °C by 2100, the Andean country would face three major threats, which could cause tens of thousands of people to be displaced – extreme heat stress in the Amazon region, the almost total melting of glaciers in the Andes, and more intense El Niño events that would endanger coastal populations.

## Internal displacements

In Peru, migration – whether permanent or temporary, internal or external – has always existed historically. Traditionally, fewer people have migrated to the country than those who have left – to improve their job prospects, for social and educational opportunities, and increasingly, to escape environmental hazards.

"These historical flows have resulted in strong migration networks across the country that pull new migration towards cities and the coast and boost remittances to rural areas," the IOM notes.

Climate migrants tend to move mainly within their country's borders, where dynamics depend on social demographics – age, with young people leaving more often; deprivation, with poor people more likely to migrate; and gender, with men slightly more likely to move than women.

Inhabiting a land of extreme landscapes and climates, the people of Peru have developed coping and adaptation strategies to deal with hazards where

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◥ *Images of the Yanamarey glacier in the Cordillera Blanca mountains taken in 1997 (left) and 2004 (right), show that it has retreated significantly in only seven years.*

they live. In the *costa*, fishermen move along the coast, depending on the availability of marine resources determined by ENSO. And farmers in Piura, in the country's north, migrate temporarily during droughts to diversify their income.

In the highlands, the effects of climate change have accelerated the historically large flows of migrants due to cold waves and freezing weather, water shortages caused by glacier retreat, and changes in rainfall patterns. In the *selva* region, farmers migrate mainly as a temporary and precautionary measure during the rainy season, to mitigate food insecurity.

Many migrants have no choice but to resettle in areas that are also exposed to multiple hazards – such as riverbeds, floodplains and water-stressed hills in the outskirts of cities. "Such disaster displacement can take a high psychosocial toll on people who have lost their livelihoods and assets, including homes and other infrastructure," the IOM points out.

In this context, the role of the media in climate displacement management is increasingly important. "The victims of the 2017 *huaico* are still living in tents in Lima, three years later," notes Márquez.

"There is a growing interest in the human stories behind climate migration," remarks Pablo Escribano, Regional Thematic Specialist in Migration, Environment and Climate Change in IOM's Regional Office for Central America, North America and the Caribbean.

"These stories are important because they bring audiences closer to the reality of the people who are affected by climate change and forced migration," he adds.

## A global phenomenon

The increase in climate migration in Peru – as in other countries with high rates, such as Bangladesh, Fiji, Ghana, and Tanzania – is part of a worldwide trend. In April 2021, UNHCR, the UN Refugee Agency, published a report stating that over the past decade, weather-related events triggered an average of 21.5 million new displacements each year – over twice as many as the displacements caused by conflict and violence.

According to a 2021 report by IDMC, 30.7 million people worldwide were displaced because of geophysical and weather-related disasters in 2020. Meteorological events accounted for ninety-eight per cent of disaster displacement.

"Our report also shows that most of the people displaced by these disasters remain in their home countries," explains Alexandra Bilak, director of IDMC. She fears that this "will further exacerbate socio-economic inequalities."

CC BY 2.0 photo by the Ministry of Defence of Peru

*The evacuation of citizens who were affected by El Niño in the northwestern region of Piura, after torrential rains in 2017.*

## An organized response

"The PIK-IOM report puts the evidence on the table," notes Johan Rockström, director of PIK. "In Peru, we are seeing the impacts of how climate change and ecosystem degradation amplify the risks of human displacement and migration, already occurring now at 1.2 °C of global warming."

"Given that Peru shares its ecosystems – *sierra*, *costa*, *selva* – with its neighbours, some realities may be shared too," says Escribano. "What differentiates them is the response of the authorities."

"The Latin American region has been a pioneer in the development of policies on migration, the environment and climate change, perhaps as much as the Pacific," he adds. "In several countries in the region – like Peru, Guatemala, Belize and Chile – efforts are underway to improve the policy response to climate migration."

Though some legal gaps remain, Peru has established several reference frameworks on climate change since 2000, and now has a wide range of legal instruments and policies applicable to climate migration.

> **"El Niño displaced nearly 300,000 people when it last occurred in 2017**

Although most climate migrations remain internal and are therefore the responsibility of states, regional initiatives are also being developed, Escribano notes.

"In South America, the regional organization with the most advanced approach to climate migration is the South American Conference on Migration (SACM)," according to him. "It is currently working on mapping policies on migration, the environment, and climate change."

That is an increasingly evident necessity, given the future impact of natural disasters on the continent's population.

# In Canada, a centre to treat the wounds of exile

The psychological distress suffered by migrants and refugees has been ignored for a long time. But this is changing, with the introduction of services like the Specialized Psychological Services for Immigrants and for Refugees at the Jeffery Hale Hospital in Quebec, which addresses the symptoms of patients taking into account the culture of their origin.

**Guy Sabourin**

Freelance journalist based in Montreal.

Assane Traoré*, now a refugee in Quebec, recently left West Africa, where he witnessed massacres and violence perpetrated by jihadist groups. In the evenings, he locks himself in with his family, pulling the shades to cover the windows. He constantly feels he is being followed.

"He's here, but still [thinks he's] over there, like many others," explains psychologist Jean-Bernard Pocreau, retired tenured professor at the School of Psychology, Université Laval, Quebec, and co-founder of the Specialized Psychological Services for Immigrants and for Refugees (SAPSIR), who treated Traoré. "What was relevant in his home country no longer matters here. His anxiety is affecting his family."

Normally, migrants do not suffer from mental health issues any more than the general population (one in four people in their lifetime, according to the World Health Organization). But their specific experiences before migrating and in the host country may increase their psychological distress.

Migrants who have the opportunity of returning to their home country may be prone to depression, and may idealize the life they left behind. "This sadness can actualize or exacerbate previous latent pathologies, if there were fragilities or vulnerabilities originally," Pocreau says.

## Decoding suffering

But for asylum seekers and refugees who have experienced separation and heartbreak, the grief can be severe. They are susceptible to depression and anxiety, family conflicts, and post-traumatic stress accentuated by exile.

This often results in physical disorders affecting the head, digestive system, or the spine. "Their suffering is still very real, even if it has no observable physical basis," according to Pocreau. "Many migrants from traditional cultures perceive their difficulties in ways that are very different from ours. This is why we must, first of all, decode their reading of the situation." These different pathologies primarily affect self-confidence, social ties, and their perception of the future.

Migrants and refugees also suffer, to varying degrees, from the institutional violence and repeated attacks that may occur in their host country. Take, for example, the case of a survivor of the Rwandan genocide who lost her family and some of her children during the conflict, but managed to build a new life in Quebec. One evening, she was attacked while leaving work. "This attack reawakened all her previous traumas," recalls Pocreau. "The recovery of her vitality [in her new country] collapsed. Irrationality took over, and made her feel that she was always in danger, wherever she was."

## The contribution of ethnopsychiatry

"At the turn of the millennium, migrants and refugees felt misunderstood when they approached the health-care system during episodes of psychological distress," explains psychologist Lucienne Martins Borges, professor at the School of Social Work and Criminology, Université Laval, and co-founder of SAPSIR. "We were aware of this issue, so we created a service for them."

Based in premises adjoining the Refugee Health Service of the Jeffery Hale Hospital in Quebec City, SAPSIR is a part of the publicly-funded health establishment. "For complex situations, the large-group approach is best," Borges says. The team includes the person who first refers the individual to the service, a senior psychologist and a co-therapist, a social worker, a nurse, and an interpreter and cultural mediator.

"The people we see are often from collectives or community organizations, so they respond better to group interventions," she adds. Depending on the case, there are also small-group follow-ups. Some cases may be seen by a small team of two or three professionals, and rarely, individual follow-ups.

"During these meetings, we must really build on the person's culture, the elements that have shaped him or her, and that have meaning for him or her," Pocreau explains. "We must gradually enter their world and then work together to weave and construct an understanding that will allow them to bond. This is crucial if the person is to accept the treatment and consider it is relevant and useful for them."

This approach is derived from ethnopsychiatry, which accords a central place to the cultural dimension in the expression of psychological symptoms. The team meets the person fifteen to seventeen times, and then supervises the intervener who takes over. That is how the SAPSIR approach has spread throughout the country.

"I've been in this field for a quarter of a century and I can tell you that we are witnessing an evolution among the interveners," Pocreau insists. He is confident that some professionals in Quebec are now inspired by ethnopsychiatric thinking and the intercultural clinical approach to treating the psychological suffering of migrants.

## Restoring confidence in the future

Migrants and refugees need physical and psychological security and to feel reassured that they are able to make plans for the future. They need to know how they can continue to be themselves in a new place. They need time, a protective net, and people around them, to feel a sense of security.

> **"SAPSIR's approach accords a central place to the cultural dimension in the expression of psychological symptoms**

An example of this is the case of a South American agricultural engineer, who was imprisoned by militias after having been heavily involved in rural communities. His captors had trapped him in a bag, thrown him into the water and shot at him. He miraculously escaped, but when he arrived in Quebec in a state of major depression, he was unable to imagine a future for himself.

This changed once he got involved in a local initiative to save a river in Quebec. "He found himself in a familiar situation, in a world he knew that made sense to him," explains Pocreau. "This is what allows the person to experience the coherence and continuity of the self."

"It's like a before-and-after advertisement for plastic surgery," enthuses Borges. "You can physically see the change. You go from being a stooped, lifeless person in distress to someone who quickly becomes more invested, smiling, and confident about the future. If we hadn't seen these results in therapy, I don't think we would have had the energy to continue [with our work]."

"There are also times when we lose contact with people who carry an aggression that is not their own, who are sad and depressed," adds the therapist. "They no longer trust other people and are unable to maintain a link with us."

"Our system responds to a need, and the majority of the people we see find meaning in their lives again," says Borges. She is concerned that an interruption in SAPSIR's service for children has affected them – the programme is back on track in autumn 2021.

"What worries me are all those people who do not reach us, especially the children, many of whom are traumatized. That's what keeps us awake at night right now," she concludes.

## ICCAR: A network of welcoming cities

Säli, Ali, and Nariman had only two weeks to make their case. The three young Germans were selected to be the faces of the Together Human campaign, designed to fight stereotypes about people from an immigrant background.

Highlighting the integration success stories of Säli, a medical student, Ali, a firefighter and sportsman, and Nariman, a naval officer, the campaign ran live and online on social media from 26 November to 7 December 2019.

Using messages to foster diversity and inclusion, videos and a thousand posters starring the protagonists were put up on the streets of three German cities: Berlin, Stuttgart, and Leipzig.

This campaign is just one example of the actions carried out by the International Coalition of Inclusive and Sustainable Cities (ICCAR). Launched by UNESCO in 2004, this initiative aims to emphasize the contribution of migrants and refugees to the development of host societies.

With a network of more than 500 cities worldwide, ICCAR is involved in policy development, capacity-building and awareness-raising activities – to promote inclusive urban development that is free of all forms of discrimination.

*Some names have been changed to protect the identities of those interviewed.

© Marcelo Brodsky, from the book *Nexus*, published by Editorial Lamarca, Buenos Aires, 2001

◥ **Self-Portrait as Shot to Death,** ***Plaza San Felipe Neri, Barcelona, 1979,*** ***from*** **Nexus,** ***by Marcelo Brodsky. Born in 1954 in Buenos Aires, he was forced into exile in Barcelona, following the military coup in Argentina in 1976.***

Smartphones have become crucial to the survival of migrants and refugees – enabling them to keep in touch with their families, seek financial help in times of need, and to find the information they require to continue on their often perilous journeys. A study in Fez, Morocco, led by the author, highlights the critical importance of mobile technologies at every stage of the way.

# Mobile phones: An indispensable tool for migrants

**Moha Ennaji**

Linguist, author and activist, he is President and Co-founder of the International Institute for Languages and Cultures (INLAC), and a Professor of Linguistics and Cultural Studies at the Sidi Mohamed Ben Abdellah University in Fez.

"Sometimes I have to choose between food and internet connectivity, to keep in touch with my family back home. When I need money, I make a call to them via WhatsApp, and they send it very quickly." This is how Mamadou, a 22-year-old from Niger, sums up the key role that smartphones now play in the lives of migrants. The fact that refugees can spend up to a third of their budget on internet access – according to the Rabat office of the UNHCR, the United Nations Refugee Agency – is proof of how important these portable devices are.

When migrants leave their home countries, they are entirely dependent on their mobile phones. Smartphones and tablets have a significant impact on their experiences at every stage of their journey. This is what emerged from the fieldwork I conducted – with Filippo Bignami, a senior researcher and lecturer at the University of Applied Sciences and Arts of Southern Switzerland (SUPSI) – between 2017 and 2019 in Fez, with refugees and illegal migrants from Syria, Libya, and sub-Saharan Africa.

Since the mid-2000s, Morocco, which has long been a land of immigration, has become a place of transit and reception for a large number of migrants from sub-Saharan Africa – notably Congo, Côte d'Ivoire, Mali, Nigeria, and Senegal. They hope to reach Europe, either via the Spanish enclaves of Ceuta and Melilla, or via the Canary Islands, before crossing the Mediterranean or the Atlantic Ocean. Although they usually consider their stay in Morocco a mere stopover, many migrants end up staying for months, or even years, in difficult conditions.

## Co-operation and mutual support

The people we interviewed had varying levels of education, which influenced their "digital literacy", or their ability to take advantage of the opportunities available to them via the internet and mobile technology networks.

> **"Refugees can spend up to a third of their budget on internet access**

Not surprisingly, we found that smartphones support migration flows by providing migrants with online information leading up to the trip – often influencing their motivation to leave, the choice of routes and final destinations, and then throughout the journey.

They also facilitate co-operation and mutual support between migrants. Illegal migrants tend to be more dependent on unofficial sources of information – especially information provided by smugglers.

Smugglers have the advantage of being familiar with the routes, border crossings and visa procedures. The migrants we spoke to said they had received accurate information from the smugglers, who often used social networks to provide assistance during the journey.

© Maxime Reynié

◥ *A notebook, a bag and a mobile phone is all that 25-year-old Saeed brought with him when he fled Sudan for France. From the series* In the bag of refugees*, by French photojournalist Maxime Reynié.*

Regis, a 23-year-old from Cameroon, followed directions from his smuggler via text messages from his home country all the way to Fez. However, some migrants refuse to rely on the services of smugglers, and prefer to continue their journeys using navigation tools like GPS and Google Maps.

## A comforting link to loved ones

For those who are driven to take the uncertain and often perilous routes of migration, mobile phones are also – perhaps above all – a comforting link with the loved ones left behind. They are kept informed of travel conditions via messages and photos exchanged on WhatsApp, Messenger, Telegram, or Facebook.

The moral support provided by families is accompanied by financial support in many cases – which often determines whether or not the journey continues. The funds provided by the family are usually transferred directly, using mobile technology. "Without my smartphone and social networks, I would feel more excluded and isolated," says Yaya, a 22-year-old from Guinea. "I use it to ask my friends for help, and to keep in touch with my family."

> **"Better-informed potential migrants are not necessarily more successful in reaching their desired destinations**

But new technologies provide no protection against all the risks associated with illegal migration. Our research revealed that better-informed potential migrants are not necessarily more successful in reaching their desired destinations. In spite of their efforts, they are just as likely to be victims of robberies and assaults, or subject to security devices that turn them back at borders – forcing them to remain in the transit country in many cases.

New technologies can also be sources of false information and rumours that can influence the choices of potential migrants. Ibrahima, a 23-year-old from Côte d'Ivoire, decided to leave his country after reading on the internet that, once he arrived in Morocco, he would be sent to a European country as an asylum seeker who was attending school. After he realized that this was not the case, he risked his life every night trying to get onto a truck heading for Spain. Stories like this are quite common among illegal migrants.

Those who do manage to reach their destinations could also contribute to influencing future migrants, by sharing information and images about their new life via messaging apps and social networks. ■

# Venera Toktorova:

## A Kyrgyz migrant makes her way

When she arrived in Moscow over a decade ago, Venera Toktorova endured the typical fate of immigrants from Kyrgyzstan, taking on a series of tough, low-paid jobs. Today, after years of hard work, she is a successful entrepreneur who owns two restaurants, and the only Kyrgyz movie theatre in the city, which she co-founded.

**Nazigul Jusupova**

Kyrgyz journalist, based in Moscow.

In a lively café filled with Asian music in Moscow's east, a woman watches the comings and goings of the servers with an authoritative eye, while checking her mobile phone from time to time. Wearing a light-coloured dress and her hair neatly tied back, Venera Toktorova, 40, is the owner of the Sulaiman-Too – named after the sacred mountain of her homeland.

Thirteen years ago, Toktorova left the small town of Osh in Kyrgyzstan after a divorce, and moved to the Russian capital with her three-year-old daughter. She was destitute at the time, and had nowhere to go. But nothing daunted the determination of this woman who, as a child, had sold chewing gum and cigarettes at the local bazaar after school to help support her family.

With a degree in economics, she could have become a teacher in her country. "I can imagine how difficult life would have been, with a salary that barely covered basic expenses," she says. The average salary in Kyrgyzstan is about $200 a month – the lowest among countries in the region. In 2019, there were more than 1 million migrants from Kyrgyzstan in Russia.

When she arrived in Moscow, she followed the path that is typical for migrants from this Central Asian country. "At that time, they were usually employed as maintenance workers and lived in basements," recalls Toktorova, who initially lived in a basement with her daughter. At first, she worked as a janitor in a posh building, and then as a house cleaner, to pay for her daughter's schooling. She chose to turn down better-paying jobs that would have forced her to leave her child with a nanny. "It was important for me to see her grow up," she explains.

### The power of dreams

Through sheer hard work, she managed to save enough money in a year to buy a small apartment in Osh. "I used to get up at dawn to clean for my first employer, I would then take my daughter to school, and go back to work. Then I would leave to pick up my daughter, and when she was in bed, I would go to another employer to clean the floor. I felt like a hamster on a wheel," she remembers.

Besides working hard, Toktorova, who has not remarried, was also driven by a dream – she imagined a more comfortable life for herself, and a place to call her own. "Today I have my own apartment in Moscow, and a big TV screen. This is proof that dreams do come true!" she enthuses.

Over the years, the idea of returning to Kyrgyzstan has faded. The desire to provide her daughter with a quality education, and her own success, have led Toktorova to keep postponing her wish to return. "I left Moscow so many times telling myself that I would never return, but each time I came back," she admits.

She has certainly come a long way since her arrival. Now an accomplished entrepreneur, Toktorova co-owns two restaurants. But though she has settled in Moscow, she has not severed her ties to the country of her birth.

Three years ago, Toktorova started the only Kyrgyz cinema hall in the Russian capital, with several partners. A lack of experience and management errors quickly led to the failure of this venture.

> **"Manas Cinemas is one of the capital's main Kyrgyz cultural attractions today**

However, the few months that the Manas cinema existed were enough to create a need among her compatriots – who actively campaigned for its reopening.

Named after a famous Kyrgyz epic, Manas Cinemas is today one of Moscow's main Kyrgyz cultural attractions. People from Kyrgyzstan come here to be entertained, but just as much to cure their homesickness. Many confess to Toktorova that they enjoy watching Kyrgyz films abroad more than they did at home. When they leave, they always thank her for giving them the opportunity to see a film in their own language, and in the setting of their childhood.

## A renaissance of Kyrgyz cinema

In recent years, Kyrgyz cinema has gained a new vitality. The seventh art had reached its peak locally in the 1970s. This was the time of the "Kyrgyz miracle", when young directors adapted the works of the writer Chingiz Aïtmatov (1928-2008) for the big screen. But after Kyrgyzstan became an independent country in 1991, the film industry was deprived of subsidies and went through a period of decline.

Today, a new generation of filmmakers has emerged, bringing commercially viable projects to the big screen that have found their audience. As a result, Kyrgyz films have found their place alongside international productions.

> **"In Moscow, I've had to work hard, but I've blossomed in this new life**

In 2018, on the occasion of the 90th anniversary of Aïtmatov's birth, the Kyrgyz embassy in Russia gifted a collection of films adapted from his works to Manas. This allowed the film theatre to programme Kyrgyz films from the "Golden Age" free of charge for an entire year. "It was a wonderful gift," says Toktorova, admitting that she only recently discovered the richness of Kyrgyz cinema.

Thirteen years after leaving Kyrgyzstan, the successful entrepreneur says she can imagine herself living in Moscow for a few more years. "Here I've had to work hard and overcome difficulties, but I've blossomed in this new life. I've learned to think differently, and I've become stronger."

Still, Toktorova has never quite given up the hope that she will return to live in her homeland one day. "No matter how educated or how successful we are, we migrants always have the strong feeling of being from somewhere else."

© Maria Plotnikova

*Venera Toktorova takes a front seat at Manas, the Kyrgyz cinema hall in Moscow that she helped found, August 2021.*

China, after India and Mexico, accounts for the largest number of people who have left their home countries to migrate elsewhere. The history of Chinese immigration, marked by successive waves, dates back to the opening of the ancient maritime Silk Road.

# The Overseas Chinese: A long history

**Zhuang Guotu**

Chair Professor of Huaqiao University and a professor at Xiamen University, in China's Fujian province. His research focuses on the history of ethnic China and the history of the country's international relations. He is also a member of the advisors committee of the State Council for Overseas Chinese Affairs.

There are more than 10.7 million Chinese overseas today – about 60 million, if their descendants are included – according to the International Organization for Migration (IOM).

This is one of the highest figures of immigration in the world. But the history of Chinese migration is ancient. It began with the opening of the maritime Silk Road over 2,000 years ago, with immigrants moving mainly to Southeast Asia.

By the early fifteenth century, several Chinatowns – each hosting thousands of overseas Chinese – were established in Sumatra and Java (present-day Indonesia).

But it was at the end of the sixteenth century that large-scale migration began. Meanwhile, Europeans had established themselves in the Far East, with the intention of integrating the region into the world trade network. They competed with each other to expand and develop the colonies in Southeast Asia, creating a demand for Chinese traders and workers.

By the beginning of the seventeenth century, there were about 100,000 overseas Chinese in Southeast Asia, and around 20,000 to 30,000 in Japan. They were mainly engaged in trade and crafts. By the mid-nineteenth century, their numbers had increased to 1.5 million, with most of them settled in Southeast Asia. In Japan, they integrated into Japanese society.

## The impact of the Opium Wars

From the middle of the nineteenth century to the early 1940s, a second wave of migration started in China. Unskilled labourers, or so-called "Chinese contracted coolies", formed a major part of this wave. Through the two Opium Wars in the mid-nineteenth century, Britain and France forced the Qing government to authorize a massive exodus of Chinese labourers to western countries and their colonies, to replace black slaves.

This was the beginning of the dispersion of the Chinese across the world – from Southeast Asia to America, Africa, Europe, and Australia.

After the First World War, and before the Second World War broke out in the Pacific, the economic prosperity of Southeast Asia further stimulated the demand for labour, that was met by Chinese immigrants. By the early 1940s, there were around 8.5 million Chinese expatriates worldwide – over ninety per cent of them in Southeast Asia.

> **"A distinctive trait of the Chinese diaspora worldwide is the importance they place on educating the next generation**

From 1949, when the People's Republic of China was founded, to the late 1970s, large-scale migration was no longer permitted. The tide of overseas Chinese immigration that had continued for more than 300 years was interrupted.

A third wave of new Chinese migrants started in the 1980s, and was an integral part of the surge of global migration. The majority of migrants came from mainland China, but also from Taiwan, and Hong Kong.

*Children studying in a hand laundry in New York, by documentary photographer Bud Glick. From 1981 to 1984, he was commissioned by the Museum of Chinese in America (MOCA) to photograph the street life, people, and domestic scenes of Manhattan's Chinatown.*

© Bud Glick

They moved mainly to industrialized countries – the top destination for overseas Chinese at the time was the United States.

China's rapid economic growth and the development of foreign trade relations in recent years have seen a large number of Chinese move to developing countries. The population of Chinese migrants has soared in Central and Western Asia, Africa, and Latin America.

## Railroad construction and gold mining

The overseas Chinese made significant contributions to their new societies. Whether in the tropical countries of Southeast Asia, or in the temperate nations of Europe and America, they pioneered the construction of roads and reclaimed wasteland in Southeast Asia in the eighteenth century. They built ports and cities; mined gold in the US in the nineteenth century; constructed railroads, and opened restaurants and grocery stores in Europe in the twentieth century.

> **Starting in the 1980s, Chinese migrants moved mainly to industrialized countries**

With a tradition of hard work and frugality, Chinese migrants tend to earn their place in society by saving their income and investing in property to tide them through economic hardship. So when a crisis hits, they are invariably able to take care of themselves before seeking help from family and friends – let alone the new society in which they live.

The overseas Chinese continue to have strong ties to their home country. They believe that China is their homeland – an attachment that often lasts for generations.

One of the main reasons they migrate is to be able to support their families and friends – they have a culture of making remittances to help those at home financially.

For nearly a century, the Chinese diaspora has also participated in China's modernization. Since the 1980s, over two-thirds of the foreign investment accepted by the Chinese government has come from expatriates.

## Characteristics and stereotypes

The overseas Chinese have a reputation of being hard-working and thrifty. Another distinctive trait of the diaspora worldwide is the importance they place on educating the next generation.

"All work is inferior, only reading is superior," is an old Chinese belief. Whether they are rich or poor, Chinese families abroad are willing to make sacrifices to ensure that their children get the best education possible.

These characteristics have sometimes fuelled stereotypical perceptions of Chinese immigrant communities that have further widened the chasm between them and other social groups in their destination countries.

However, it is difficult to make generalizations about such a large group of migrants. In a globalized world where cultures are constantly in communication, any attempt to label certain groups of people is short-sighted and irrational. Overseas Chinese have continued to explore and build their identities in this increasingly integrated world.

In the context of the Covid-19 pandemic, where discrimination against people of East Asian descent has erupted, these challenges cannot be resolved overnight. But the Chinese abroad have developed a resilience to such stereotypes over the centuries, which could be useful while confronting these hardships.

## Refugee education: A serious lack of funding

Nearly half the world's displaced people today are children. Their numbers have been growing steadily in recent years – the number of school-age refugee children has increased by twenty-six per cent since 2000. These are the findings from UNESCO's 2019 Global Education Monitoring (GEM) report, *Migration, displacement and education: Building bridges, not walls*. It emphasizes that while the right of these children to a quality education is recognized in theory, it does not always translate into reality in classrooms.

Nevertheless, progress has been made to integrate these children, notably by some of the top refugee-hosting countries, such as Chad, Ethiopia and Uganda. Canada and Ireland stand out for implementing inclusive education policies for immigrants.

However, efforts to achieve inclusion are in danger of failing because of a lack of qualified teachers. To provide quality education for all refugees, Germany would need 42,000 new teachers, Turkey 80,000, and Uganda 7,000. To support children who may have experienced trauma, these teachers need specialized training, which is often inadequate or absent. In Lebanon, for example, only fifty-five per cent of teachers were trained to meet the needs of displaced students.

Funding is also sorely inadequate. In 2016, only $800 million was spent on refugee education worldwide – a third of what was needed, according to the report.

# Teeth: Mapping our past mobility

A treasure trove of information for archaeologists, our teeth can reveal our journeys, even centuries later.

**Jenny Dare**

UNESCO

Ancient teeth can be analysed by archaeologists to uncover patterns of migration. "With some sleuthing, the chemical composition of a person's tooth provides a mini-life history," says Carolyn Freiwald, archaeologist and associate professor of Anthropology at the University of Mississippi, United States, who studies the biology and chemistry of teeth.

When teeth form, elements from food and water, such as oxygen, nitrogen and carbon, are incorporated into them. These chemical traces reveal where food was grown and consumed. "In cultures around the world, we've found people whose teeth tell us they migrated. We often think of ancient people as stationary, but in reality, people have always been mobile," Freiwald explains.

Unlike bones, which regenerate through our lives, teeth do not produce new cells when they form. The first molar, for example, forms and sets during infancy, chemically "recording" a baby's diet. The wisdom tooth contains a diary of what an adult eats, and where their food originates. A mouthful of teeth can provide us with a map of where a person lived, between birth and burial.

It's not only teeth that give us clues. The mineralized dental plaque or calculus – tiny layers of food and bacteria which build up where teeth meet gums – contains twenty-five times more DNA than a bone. In 2019, researchers from the University of Adelaide, Australia, used calculus from the teeth of ancient Polynesians to decipher the timings and exact migration routes of prehistoric humans in the Pacific. Anthropologists suggest that researching dental calculus could unearth answers to the riddles of past migratory patterns.

Today, forensic scientists apply these techniques to identify migrants who die during perilous journeys. As Freiwald adds, "It's a bit harder, since modern people eat food from so many different places, but if our combined work in this area can bring a person home to their family, it's worth the effort."

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# Eva-Maria Geigl: "The history of humanity is made up of a succession of migrations"

Whether for reasons prompted by climate change, conflicts, or subsistence, humans have always moved around and intermingled, as the analysis of the genome of bones found at archaeological sites shows.
Eva-Maria Geigl, co-leader of a palaeogenomics team at the Institut Jacques Monod of the French National Centre for Scientific Research (CNRS)/University of Paris, elaborates.

**Interview by Agnès Bardon**

UNESCO

***What is the role of palaeogenomics?***

Palaeogenomics is a discipline that complements archaeology and anthropology. Archaeologists conduct excavations and find bone fragments that they try to place in a given period and culture. The analysis of human remains from excavations can identify the sex of the individual, possibly his or her social status, the diseases that affected him or her – and often even provide indications on the functioning of a society.

The work of palaeogeneticists consists of extracting DNA from bones to analyse their genome. This genome is then compared to that of individuals who lived at other times, in other places, or from current populations. In this way, we can reconstruct affiliations – links of kinship, genetic proximity – but also the migrations and interbreeding that occurred over time.

***How can genomic information be used to tell the biological history of a population?***

Genetic analysis makes it possible to characterize the history of the settlement of a given region, and therefore also the movements of populations and their interbreeding with indigenous communities. Palaeogenomics has shown that 8,500 years ago, farmers of Anatolian or Aegean origin moved to northwestern Europe. Agriculture and animal domestication developed around 12,000 years ago in the Fertile Crescent of the Middle East, in Iran and in Anatolia. About 8,500 years ago, these farmers began to migrate to Europe via a continental route that started in Greece and passed through the Balkans, then Hungary, Austria, and Germany, to arrive in northern France (the Paris Basin).

Another route followed the Mediterranean coast via what is today Croatia, Italy, Sicily, Sardinia, and Corsica, and then on to the south of France and the north-east of the Iberian Peninsula. These phenomena were known thanks to the analysis of remains found during excavations – including fragments of ceramics, flint tools, or bones of domesticated animals such as sheep, which were introduced by these populations of farmers.

But from the materials available to them, archaeologists could not determine whether only the skills and techniques of the Fertile Crescent farmers had travelled, or whether the inventors of

these techniques had physically moved. Through genomic analysis, it was possible to establish that the farmers had mingled with the indigenous hunter-gatherers who had been living in Europe for about 14,500 years, and had partially interbred with these populations.

● ***Does genome-based analysis sometimes shed new light on historical facts?***

This happened in 2012, when the remains of a young girl who lived at least 50,000 years ago were discovered in the Denisova Cave in the Altai Mountains of Russia. The genomic analysis of her phalanx demonstrated the existence of a contemporary population of Neanderthals. This population, which inhabited Asia, spread and interbred with the first sapiens from Africa. Until then, palaeoanthropologists did not suspect the existence of this population.

The migration to Europe of the Yamnaya, nomads from the Pontic steppe north of the Black Sea, is another example. These populations, who had an economy based on cattle-breeding, surged into central and northern Europe some 5,000 years ago. These steppe nomads, who were mostly men, then interbred with the indigenous farmers of the late Neolithic Period. But as their reproductive success was higher, a significant genomic replacement – called introgression – occurred.

> **“There are no genetically ‘pure’ populations**

Even today, in Brittany in the west of France, in Ireland, and in the United Kingdom, eighty per cent to ninety per cent of men carry the Y chromosome of the Yamnaya. This phenomenon was not known to archaeologists because no material traces of the passage of the Yamnaya had been found.

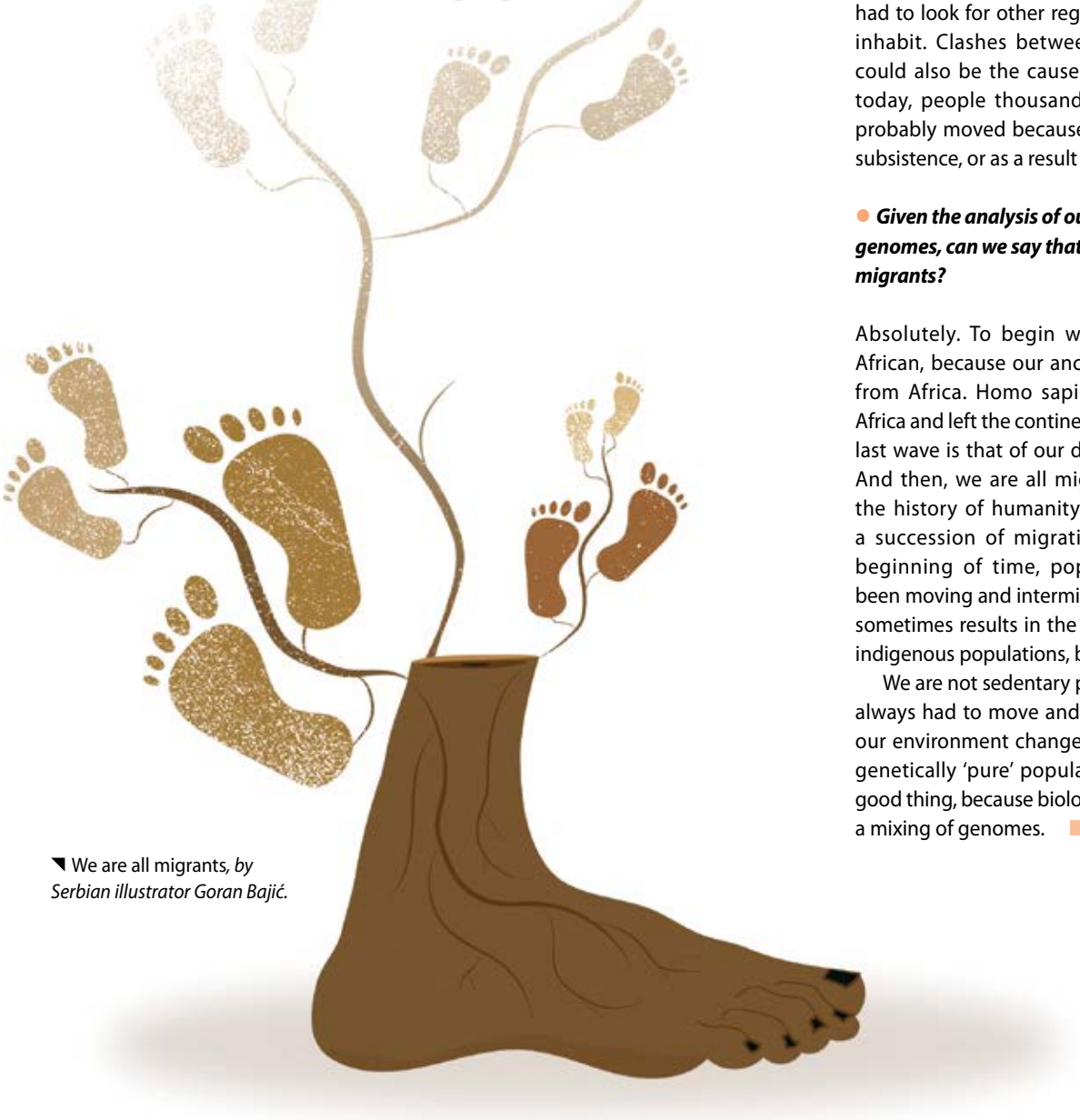
● ***Do we know the causes of these different migrations?***

Several causes can be envisaged, but these are only hypotheses. We cannot provide scientific proof. The reasons for these movements could be climatic, but they could also have been demographic. Migrations could be motivated by the necessities related to a group’s subsistence, like hunter-gatherers who followed the migrations of large animals. When the climate changed, humans had to look for other regions they could inhabit. Clashes between populations could also be the cause. Just as we do today, people thousands of years ago probably moved because of climate, for subsistence, or as a result of conflicts.

● ***Given the analysis of our ancestors’ genomes, can we say that we are all migrants?***

Absolutely. To begin with, we are all African, because our ancestors all came from Africa. Homo sapiens evolved in Africa and left the continent in waves. The last wave is that of our direct ancestors. And then, we are all migrants because the history of humanity is made up of a succession of migrations. Since the beginning of time, populations have been moving and intermingling. And this sometimes results in the replacement of indigenous populations, but not always.

We are not sedentary people. We have always had to move and adapt because our environment changed. There are no genetically ‘pure’ populations. This is a good thing, because biologically, we need a mixing of genomes. ■



◥ We are all migrants, *by Serbian illustrator Goran Bajić.*

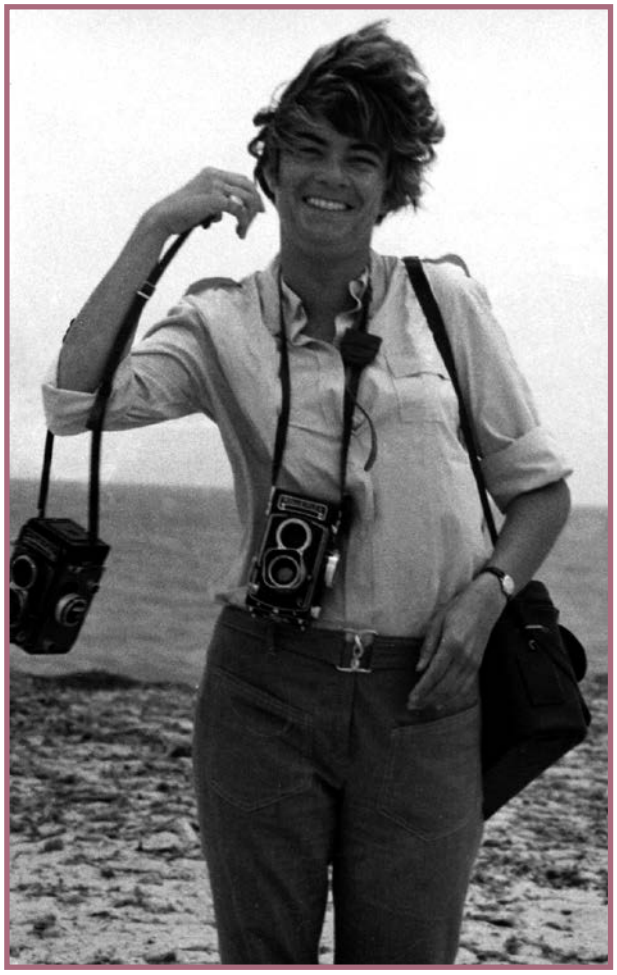
© Goran Bajić

# Dominique Roger :

## "UNESCO offered me the world"

Photos: UNESCO / Dominique Roger

Text: Katerina Markelova, UNESCO



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Dominique Roger on assignment in the 1970s.

On 4 November 1966, an acqua alta, an exceptionally high tide that periodically floods Venice, burst the coastal dykes, drowning the city under more than a metre of water. Following the call for international solidarity launched by UNESCO, countries around the world came to the rescue of this architectural wonder.

Dispatched to the scene by the Organization, Dominique Roger reported on the efforts made to save the monuments and frescoes of Venice, which, at the time, had not yet been placed on the World Heritage List.

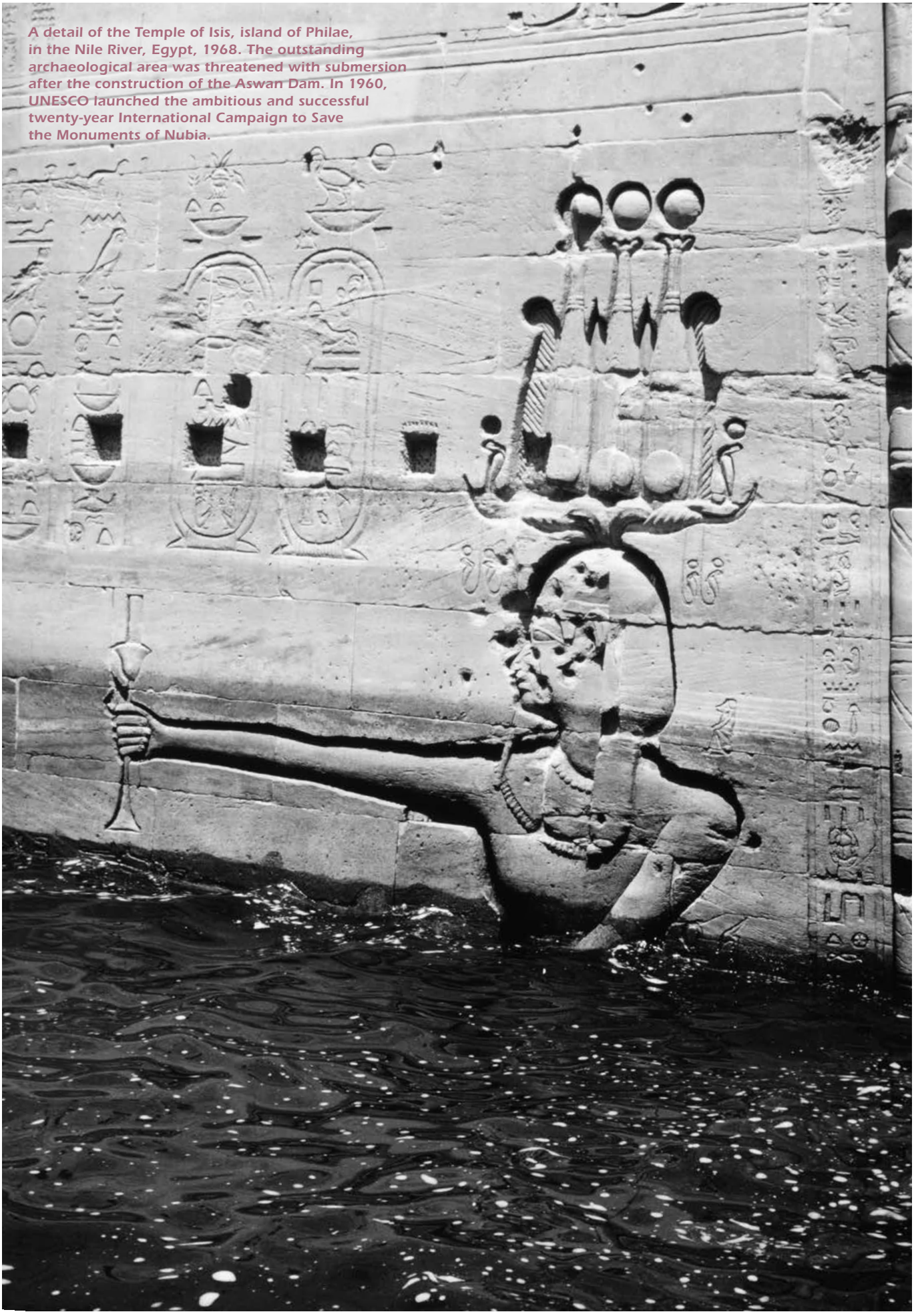
During her thirty-year career, the photographer – who went on to become head of UNESCO's photo service from 1976 to 1992 – chronicled the Organization's actions in images, both at Headquarters and on her many assignments around the world.

From the recital by South African singer Miriam Makeba in 1978, to the first deployments of underwater sensors by the Intergovernmental Oceanographic Commission, and literacy campaigns in Cabo Verde, Iran, and Peru – the photojournalist illustrated what the Organization does on a daily basis, in Paris and in the field. Roger's photos are an essential testimony, and a significant contribution to the visual memory of UNESCO.

"The Organization offered me the world and contributed to making me aware of differences, of inequalities, of 'hoping against hope', in a nutshell; of the 'Others'", wrote the photographer in her book *Un chemin vers la paix* (*A Road to Peace,* 2016). An Anglo-Spanish edition was published in 2018.

*The UNESCO Courier* has devoted many pages to Roger's photos over the years. Her work has also featured in several international exhibitions. ■

This retrospective feature marks the 75th anniversary of the UNESCO Constitution, which came into force on 4 November 1946.



A detail of the Temple of Isis, island of Philae, in the Nile River, Egypt, 1968. The outstanding archaeological area was threatened with submersion after the construction of the Aswan Dam. In 1960, UNESCO launched the ambitious and successful twenty-year International Campaign to Save the Monuments of Nubia.

Restoration of the porch of the Caryatids at the Erechtheion, 1968. In 1977, UNESCO launched a campaign for the restoration and conservation of the Acropolis Monuments, which have been ravaged by centuries of war, earthquakes, fires, water damage, air pollution and mass tourism.

A cherub sculpture being cleaned at a restoration workshop in Palazzo Davanzatti, Florence, 1967, as part of an international campaign launched by UNESCO for the safeguarding and restoration of the cultural assets of Florence, damaged by the flood of 4 November 1966.

A painting by Venetian artist Giovanni Battista Piazzetta (1682-1754) in the Basilica dei Santi Giovanni e Paolo, the largest church in Venice, being restored by Professor Pedrocco in 1968.

Water pollution caused by rubbish dumped in the Venice Lagoon, 1968.

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1. A recital by South African singer, songwriter and civil rights activist Myriam Makeba at an evening to mark the official launch of the International Anti-Apartheid Year at UNESCO Headquarters, Paris, 21 March 1978.

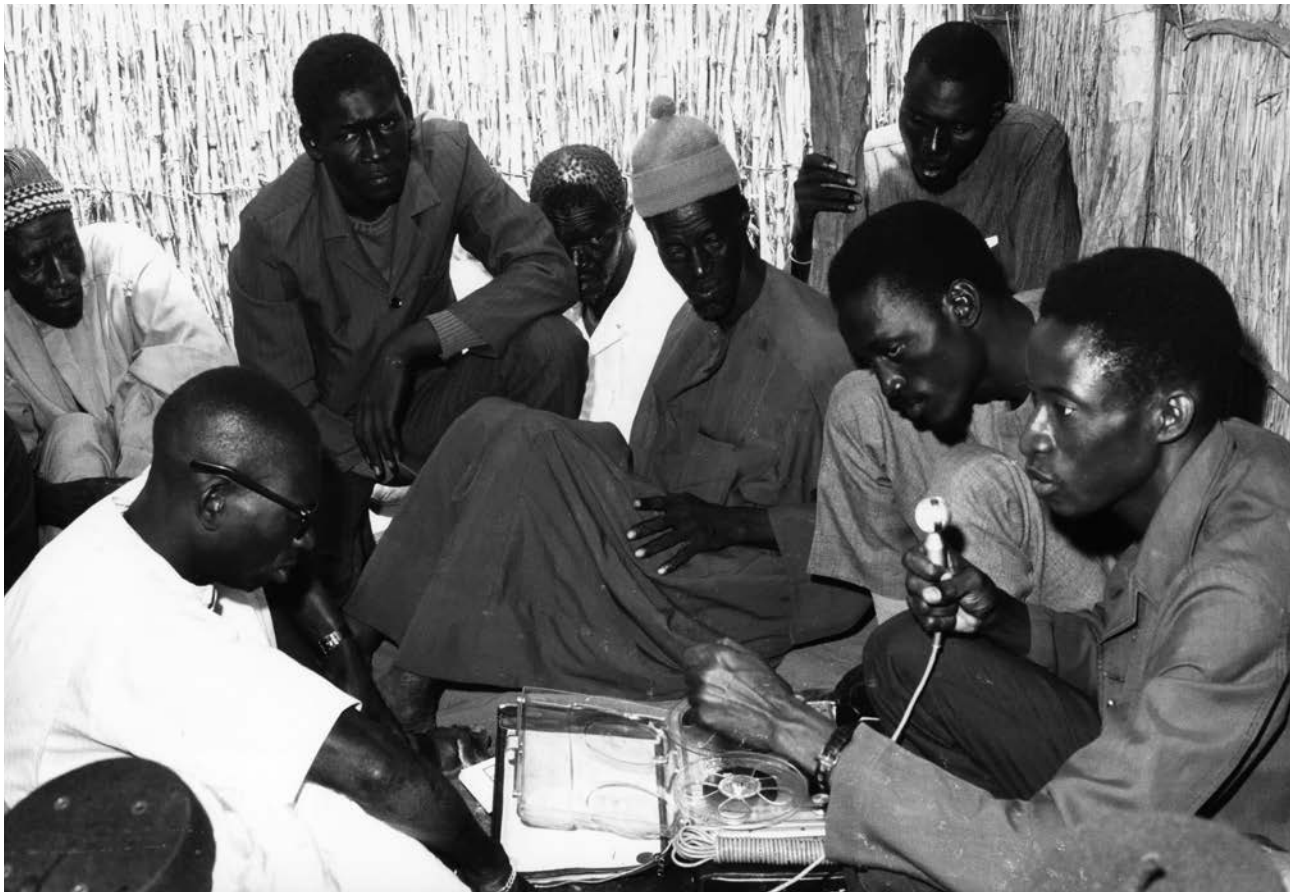
2. Violinist and conductor Yehudi Menuhin and pianist and composer Wilhelm Kempff rehearse at the Salle Pleyel in Paris, 9 January 1974, for concerts to commemorate the 25th anniversary of the International Music Council founded at UNESCO's request.

3. Léopold Sédar Senghor (left), President of Senegal, with Amadou-Mahtar M'Bow, Director-General of UNESCO, during a visit to Headquarters in Paris, May 1978.

4. Indian musician and composer Ravi Shankar performs at a musical evening at Headquarters in Paris, to mark UNESCO's 20th anniversary, 1966.

Samples of sea water being taken to measure temperature and salinity by the National Centre of Oceanographic Research, at Nosy Bé, Madagascar, 1989. The project was part of UNESCO's Intergovernmental Oceanographic Commission (IOC).

A student simulates miniature earthquakes transmitted to a "shaking table" by a hydraulic device, Tokyo, 1969. A United Nations Development Programme (UNDP) project for which UNESCO is the executing agency, collaborates with the Japanese government to train experts at the International Institute of Seismology and Earthquake Engineering to help developing countries combat the effects of earthquakes.



Farmers from Tassette, Senegal, discuss their concerns on a rural education radio programme, 1971.

Children and adults participate in a pilot literacy project of the Iranian government, run by volunteers from the Knowledge Army, who doubled as teachers in rural areas while serving in the army, Qazvin, Iran, 1965.

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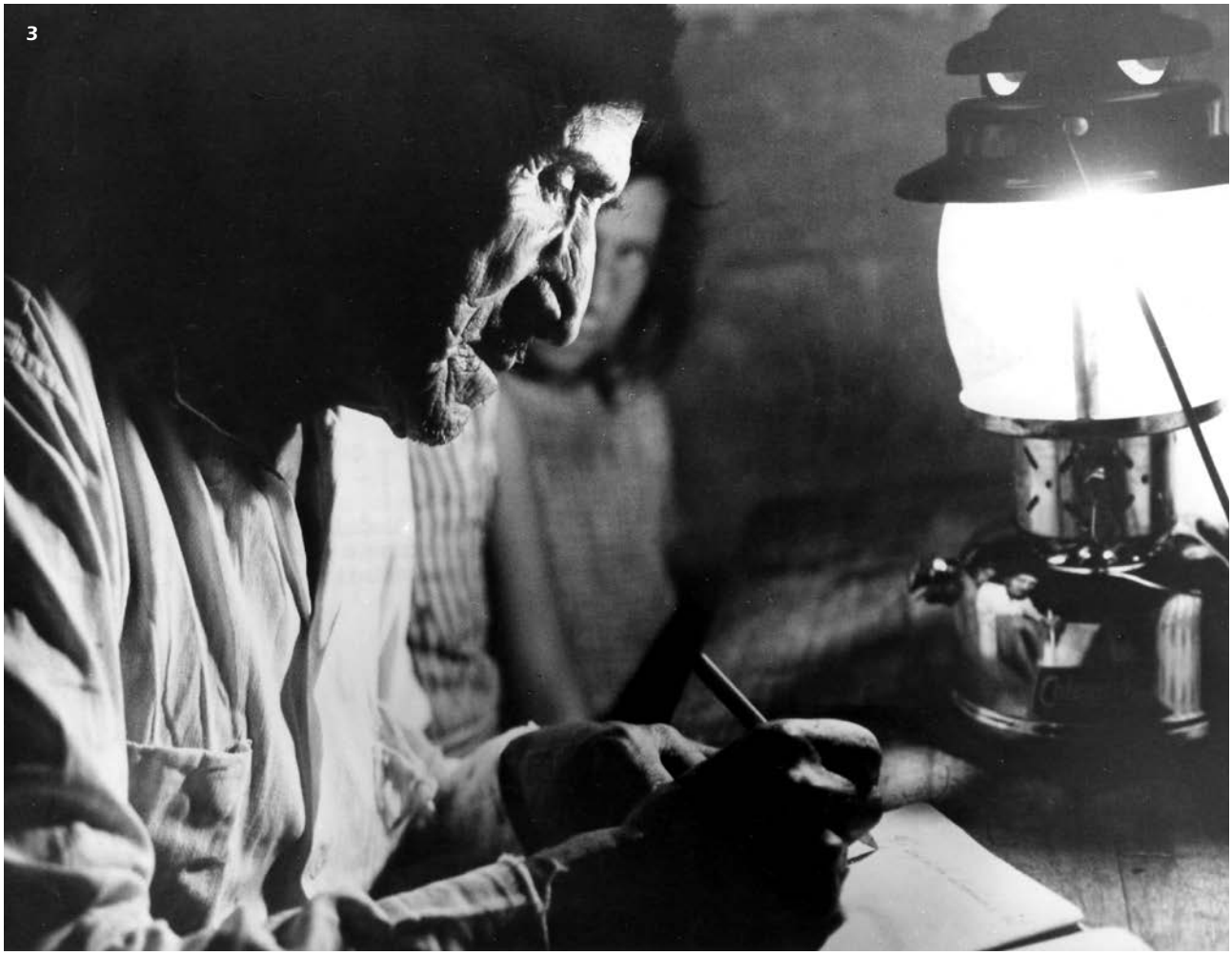

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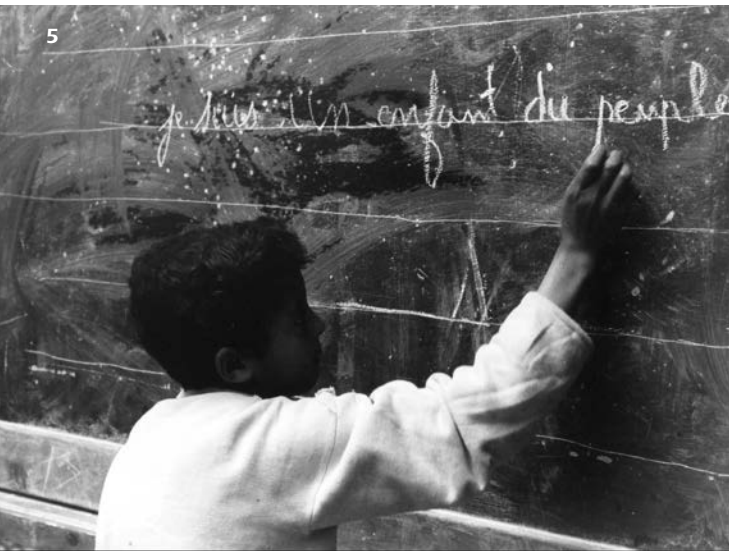

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1. A school/community centre in Pamplona, Peru, 1967, supported by UNESCO. A school for 600 girls during the day, it became a recreation centre for parents in the evenings and on weekends, offering literacy, sewing, knitting, and first aid classes.

2. A student at the primary school in Koon Po City, south of Seoul, Republic of Korea, attended by 1,430 children, 1969.

3. A work-oriented adult literacy class, Ecuador, 1967. "For me, a 35-year-old photographer in 1967, nothing was more moving than the literacy of older people. This weathered face, bent over his notebook in the light of an oil lamp, in a lost hut, was, and remains, a perfect moment of contemplation of a painting," wrote Dominique Roger.

4. Women attending a literacy programme in a rural agricultural zone on the island of Fogo, Cabo Verde, 1990.

5. A student at Chateau Holden, a welfare centre for young shoe-shine boys in Douéra, Algeria, 1964.

# Open science:

## A global movement catches on

The Covid-19 pandemic has led to real advances in the way scientific data is shared. But there is still a long way to go before open science truly encompasses unhindered access to scientific publications, data, and collaborative research.
While the idea of a common good is gaining ground – especially among the younger generation of researchers – the commodification of scientific knowledge continues. The entire relationship between citizens and science is at stake when we consider these issues.

**Chérifa Boukacem-Zeghmouri**

Professor of Information and Communication Sciences,
Claude Bernard University Lyon 1, France.

The Covid-19 pandemic has allowed us to observe a great surge of collaboration and sharing of scientific knowledge among researchers – in the effort to cope with the virus, provide the most effective treatments, and especially, to find a vaccine. We have seen barriers fall when the major scientific publishing groups – such as Elsevier, Springer Nature, and Wiley – opened access to thousands of research articles. This allowed scientists from all over the world to read them, keep up with research advances, and thus, accelerate their work.

Data and metadata – the data that describes other data – were also opened up and shared among groups of scientists. For a time, scientific knowledge, a common good, escaped from the old and well-established forms of commercial appropriation that do not favour the dissemination of scientific knowledge.

This new collaboration has relaunched discussions in favour of an "open science". If the need for openness is felt so strongly today, it is because science – when it comes to the publication of its results – has become partly inaccessible. Besides being very costly for researchers to produce, trusted publications are also too expensive for many of the libraries that would like to subscribe to them.

### The commodification of scientific knowledge

An analysis of the historical conditions that have led to the emergence of movements in favour of open science shows us that this "closure" is deeply rooted in the long march towards the commodification of scientific knowledge. Since the end of the Second World War, scientific knowledge has been a highly profitable market – bringing in billions of euros per year for its main actors, the scientific publishers.

In their current formulation, the demands for opening up science are more aligned with the commercial and managerial rationales that have defined the organization of science since the 1950s, than they are with a denunciation of the totalitarianism that provoked the Second World War.

However, they are also related to earlier assertions by the American sociologist Robert K. Merton [1910-2003] and the Austrian-born British philosopher of science Karl Popper [1902-1994]. They denounced these monopolies as new forms of commercial totalitarianism that appropriated a common good, scientific knowledge – created and produced with the help of public actors and public funds.

Accessibility, sharing, transparency, reuse, and an interaction with society are all values championed by open science. These values can now be translated into concrete terms, thanks to digital platforms and infrastructures. This "reformulation" should also be seen in the context of the →

Illustrations: © Boris Séméniako for *The UNESCO Courier*

evolution of our societies. Science must renew its links by taking into account phenomena such as the spread of fake news, the rise of populism, and the exacerbation of inequalities.

## A new generation

The pandemic has made it possible to publicize another phenomenon related to the opening up of science, previously confined to the academic sphere.

We are now witnessing the emergence of a new generation of web-based platforms, managed by scientific communities that are adopting the principles of open science, its good practices and its standards.

Young researchers, who have an important place in these communities, are testing, innovating and experimenting to reinvent the model of scientific communication and make it more open – including to society, which can contribute to the process through comments. These young people belong to the generation that grew up with the web and digital technology. They are not afraid to shake up a system that is impenetrable without the "open sesame" effect that being published in prestigious, ultra-selective and very expensive journals represents.

> **"The interest in open science is now on the international political agenda**

Some of these platforms have played a crucial role in the dissemination of scientific information on Covid-19. Researchers were able to share their results in real time to move forward faster and more collaboratively.

These platforms base their value on advanced features and services that depend on artificial intelligence for their development – especially to cope with the incessant flow of resources.

Although they do not offer peer review in the traditional sense, they are experimenting with models that allow a form of expertise to be conferred on articles, based on the collaborative mobilization of communities.

Private research funding agencies – such as the Bill & Melinda Gates Foundation and the Chan Zuckerberg Initiative – are taking an interest in these new models and supporting them. This support offers real funding opportunities, but it also presents risks of recuperation, or even a takeover, as we have seen in the past.

The interest in open science is not limited to the academic community – it is now on the European and international political agenda. This movement goes beyond open access to scientific

Illustrations: © Boris Séméniako for *The UNESCO Courier*

## **A UNESCO Recommendation** on Open Science

At the 41st session of UNESCO's General Conference in November 2021, the Organization's Member States discuss a draft Recommendation on Open Science. Its objective is to define the shared values related to open science; to propose concrete measures for allowing open access to data; and to promote the dissemination of scientific knowledge worldwide.

The review is the culmination of an inclusive and transparent two-year consultation process, during which UNESCO established a partnership of science academies, universities, libraries, publishers and young researchers.

A Scientific Committee, composed of thirty experts from around the world, was tasked with preparing a preliminary draft text following a worldwide consultation of 2,900 participants including experts, civil society, non-governmental organizations, and United Nations agencies.

The Recommendation is a key step towards facilitating international co-operation and the universal access to scientific knowledge.

publications. It also includes the opening of research data – according to the principle of "as open as possible, as closed as necessary" – and the citizen science that characterizes the twenty-first century. Some countries are beginning to adopt policies for sharing scientific knowledge.

In another manifestation of this interest, UNESCO submits its Recommendation on Open Science to Member States in November 2021, to facilitate international co-operation and universal access to scientific knowledge.

These recommendations cover publications, data, software and educational resources, and citizen science, to emphasize the importance of keeping science in the hands of academic communities and citizens. They can then work together to ensure that the objectives of scientific advances are defined without the logic of monetization and its constraints.

### Open access publications

This national and international policy context has fostered a research framework that would have seemed utopian even twenty years ago. The number of open access publications worldwide continues to grow – it is estimated that by 2030, seventy-five per cent of publications will be open access.

The awareness of open access to research data is growing, and an understanding of the relevant issues and practices is increasing. New forms of scientific exchange – using social networks and video – are being improvised at the initiative of the researchers themselves.

The major scientific publishing groups who were earlier sworn opponents of open science, have now become zealous defenders of openness. To do this, they are migrating their digital platforms to support the ongoing transformation.

> **"Accessibility, sharing, transparency, reuse, and an interaction with society are all values championed by open science**

Negotiations between publishers and libraries over subscription rates have now become negotiations for "transformative agreements" – where the focus is on the rates for publication in the publisher's journals, or the number of articles that can be published for the same price. These issues are crucial at a time when universities are trying to improve their international rankings – which take into account the number of publications.

The inequalities that, until now, existed only between readers – between those who have access and those who don't – are being transformed into inequalities between authors; between those who can afford the cost and publish in open access, and those who cannot.

The latter will only be able to publish in traditional journals that give access to their contents through a subscription, which is also very expensive.

Open science is therefore being developed at the crossroads of increasingly internationalized policies and more active communities – whose initiatives and practices are being rejuvenated and organized around models created outside pre-existing patterns.

The new models that are emerging are trying to escape the monopolies of the past. It is around these issues that the transformation of science is taking place – freedom from the exclusionary logic of monetization; from inequalities in access to knowledge; and from new forms of monopoly exacerbated by digital technologies. All this to better face the complex challenges of society. ■

Before being published, research work is evaluated by peers, experts who examine the rigour of the approach and the reliability of the results. However, this critical process has some serious flaws. It also completely bypasses the general public, which is deprived of the essential elements for understanding how science is developed.

# Making scientific evaluations more transparent

**Alex Holcombe**

Professor at the School of Psychology, University of Sydney, Australia.

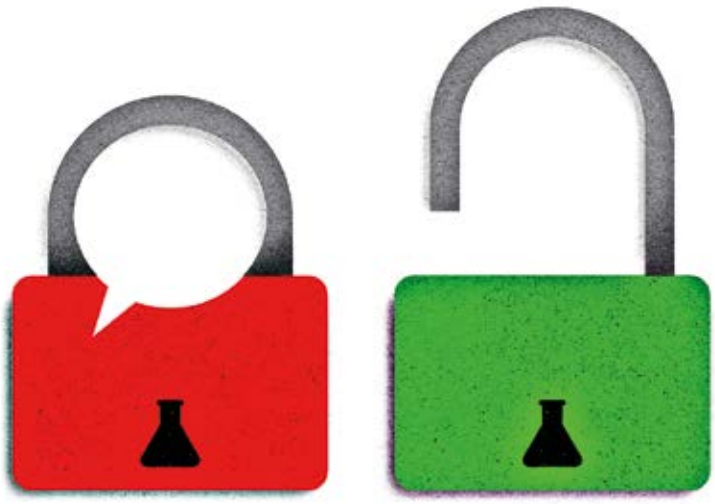

Illustration: © Francesc Roig for *The UNESCO Courier*

A year and a half into the Covid-19 pandemic, science has saved many lives. Without basic biomedical research, the vaccines could not have been engineered and evaluated for safety and efficacy. But the scientific community has not been as clear on other critical issues related to the pandemic. The evidence on the usefulness of masks, for example, and on the reliability of models of viral transmission, has been tentative. This is partly because many of the relevant studies have been flawed.

Science is complex, and it is easy to conduct a scientific study badly. To effectively evaluate the implications of these studies, we need experts to review them. This is called the peer review – the traditionally confidential process for evaluating new scientific findings.

As a researcher, I know from experience that other researchers often see flaws in my work that have eluded me. But the peer review process itself can also be flawed.

The most recent scientific findings are only trustworthy when their authors have had time to submit them for additional tests, and when multiple experts have had a chance to scrutinize them. When new research is published, scientists and others can only see the writings of the researchers who conducted the study, and nothing more.

> **“Giving the public access to debates could lead to a better understanding of science**

## Behind closed doors

Traditionally, the peer review process begins after a team of scientists submits a manuscript describing new results to a scientific journal. An editor, usually an academic from another university, reads it and decides whether the work meets the standard of the journal. If it does, the editor will recruit experts on the topic being evaluated.

Often, one or more of the experts will then provide the journal with a long list of comments and criticisms, which are forwarded to the authors.

The comments could push back against our conclusions and challenge us to make our case more strongly, or to soften some of our claims.

As an author, I don't relish seeing criticism of my work, but I know it's necessary for scientific progress. After correcting some of the flaws in our logic, or substantiating the assumptions that have not been justified, we can be more confident about our conclusions, and hope they will have a greater impact.

The back-and-forth that follows between the authors, editor, and expert reviewers results in a final manuscript, which analyses the data more rigorously and usually offers a more cautious take on its implications – whether or not it is finally accepted for publication.

Unfortunately, the public never discovers which elements of the study were called into question, or which aspects of the debate were the most controversial.

This is because the peer review process happens behind closed doors – within the password-protected walls of the journal's database. To know where different experts stand on the issues, it is imperative that the public is aware of the conflicts of opinion that arise during peer reviews.

## Disputed studies

In 2020, two studies of the impact of hydroxychloroquine and blood pressure medications on the progress of Covid-19 were retracted after publication and conventional peer review.

*The Lancet* and *The New England Journal of Medicine* (NEJM), two of the world's most respected medical journals, both had experts examine the studies in peer review. The NEJM accepted the article after receiving comments from four experts, and, as is standard, any uncertainty expressed or questions posed during the peer review were not made public.

We still do not know what the experts said. What we do know is that many scientists who were not included in the peer review process immediately detected signs that the data might be questionable, and wrote critical letters to the journal within days of its publication.

> **"Women and researchers from developing countries remain off the radar of science editors**

In this case, the huge interest in the subject motivated experts to review the article and write in with their concerns. Unfortunately, this is quite unusual.

Away from the high stakes of pandemic-related studies, evaluations of research are rarely made public. In 2013, researchers believed that they had created the smallest-scale reconstruction yet of proteins on the surface of HIV, the virus that causes AIDS. Their article was published in one of the world's most prestigious journals.

But as we later discovered, at least four other journals had previously rejected the paper – some of them because of strong criticism from their peer reviewers. None of these were made public. It was only because other experts were approached by journalists that the scientific community learned about the case.

In response to growing criticism, many journals are now opening up – giving outsiders a chance to view the live disagreements that are characteristic of cutting-edge science. And many researchers have begun posting their manuscripts on the internet before submitting them to journals. Websites for scientists to discuss and criticize new research now buzz with activity.

Editors at the journals are finding it increasingly difficult to find experts for the traditional review process. Many editors tend to rely on experts they already know, and on experienced researchers who are highly sought after, and therefore unable to keep up with the demand. This slows down the peer review process, and does not reflect the changing demographics of the scientific community.

Today, more women and minorities are involved in the sciences, and contributions from developing countries – such as China – are increasing rapidly. But many of these researchers remain off the radar of the senior scientists who edit journals that are located mostly in North America and Europe.

Over time, these problems may be resolved with the emergence of new avenues for criticism and commentary. Some journals now invite experts to make their comments public on their associated websites. The development of this practice could promote diversity in peer reviews.

## A better understanding of science

It is the dialogue among experts within the research community that defines the frontier of knowledge – that conveys the uncertainty associated with the effectiveness of a new vaccine, the forecast of more droughts in a country's future, the credibility of dietary advice, or an estimate of the economic consequences of tariffs.

Giving journalists and the public access to some of the debates among experts would mean that media reports are more accurate – leading to a better understanding of science in general.

The experts will also benefit. Having access to some of the peer review comments, researchers would be less likely to assume that a finding is totally solid, and more likely to reconsider their conclusions.

Researchers will benefit. So will science. ■

OUR GUEST

# Latin America:
## The golden age of dinosaurs

**Miriam Pérez de los Ríos**

Researcher at the Anthropology Department of the University of Chile, Santiago, her work focuses on the identification of phylogenetic relationships between species through the study of fossil skulls. She is also an executive member of the Chilean Association of Palaeontology.

In recent years, there has been such a proliferation of major palaeontological discoveries in Latin America, that the region is sometimes referred to as a "dinosaur factory". Our guest, a palaeontologist and specialist in the evolution of Miocene hominoids – apes who lived 23 million to 5 million years ago – explains that these scientific advances are the result of an increased interest in the discipline, and the significant contribution of new research methods.

**Interview by Laura Berdejo**

UNESCO

*The four-legged long-necked herbivorous dinosaurs, Titanosaurian sauropods (left), were exceptionally prevalent in Latin America, but lived all over the world.*

© Courtesy: Oscar Sanisidro

***What is the significance of the recent discoveries in Latin America?***

Latin America, and the Southern Cone in particular, are of great relevance for our understanding of the origin and evolution of dinosaurs. Many discoveries have been made, in the region of La Rioja in Argentina, a country with a long palaeontological tradition. One of the oldest known dinosaurs, *Eoraptor lunensis*, discovered in 1991, lived in the region some 230 million years ago. Teams in Brazil are currently searching for an even older specimen in the border area.

There are numerous records of these animals throughout the Mesozoic era, between 250 million and 66 million years ago. Remains of these dinosaurs can be found on all five continents, until their mass extinction at the end of the Cretaceous period, 66 million years ago. The specimens found in the region cover their entire time on earth – they became extinct at the same time as their counterparts on the rest of the planet.

However, excavations in the Southern Cone of Latin America have uncovered the remains of titanosaurs – the largest dinosaurs – belonging to unique species such as *Chilesaurus diegosuarezi*, one of the few known herbivorous theropods. The excavations have also led to the discovery of the southernmost dinosaurs, represented by a huge sauropod found in Torres del Paine, Chile.

***Do these discoveries change what we already know about dinosaurs on a global scale?***

Of course they do, because in palaeontology it is essential to compare the specimens discovered with those already identified to establish their phylogenetic

position – that is, their familial relationships to other dinosaurs. Further excavations and the comparison with known remains allow us to understand their evolution and to evaluate, through the observation of morphological changes, how speciation [the formation of new and distinct species in the course of evolution] has occurred.

This is how the National Museum of Natural History in Santiago, Chile, was able to demonstrate, in April 2021, that the remains found in the Atacama Desert in the country's north, some thirty years ago, belonged to a newly discovered species of titanosaur, *Arackar licanantay*.

> **One of the oldest known dinosaurs was discovered in Argentina**

The digital reconstruction of a Chilesaurus, 2018. Discovered in southern Chile and first described in 2015, the plant-eating dinosaur lived about 150 million years ago.

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● ***How do you explain such a succession of discoveries in Latin America in recent years?***

These latest discoveries demonstrate the progress being made in Latin America in the study of sciences such as palaeontology. Historically, Argentina has led the expertise on the fossil record in the region – due to the great interest in this discipline, and the presence of leading palaeontologists such as José Fernando Bonaparte, who discovered more than twenty species, and Rodolfo Casamiquela, a specialist in the remains of these large saurians.

In other countries, including Ecuador, Colombia, Chile, Brazil, and Peru, there has been an explosion of knowledge in recent decades – thanks to the work of different teams affiliated to universities and research centres, some of which are associated with international teams, mainly from the United States.

● ***Does the evolution of study techniques play a role in the frequency of discoveries?***

I would say that the frequency of findings does not depend so much on the methods used – which are still quite traditional – as on the creation of local teams with a high level of scientific training. In recent years, many young scientists who went to study for their doctorates in the US or Europe have returned to their home countries, and have begun to develop research projects on the local fossil fauna. This has led not only to the discovery of new material in unexplored and fairly isolated areas – such as Patagonia or tropical rainforest areas – but also to the 'rediscovery' of material that had been forgotten in national or local museums, waiting for a palaeontologist to bring it back to life.

It is true, though, that laboratory techniques have made it possible to reveal new features of fossils that were previously impossible to evaluate – such as the internal cavities of skulls or the inner ear, using computerized tomography (CT) scans. The study of bone growth is also possible today thanks to histological studies,

© Chilean National Museum of Natural History

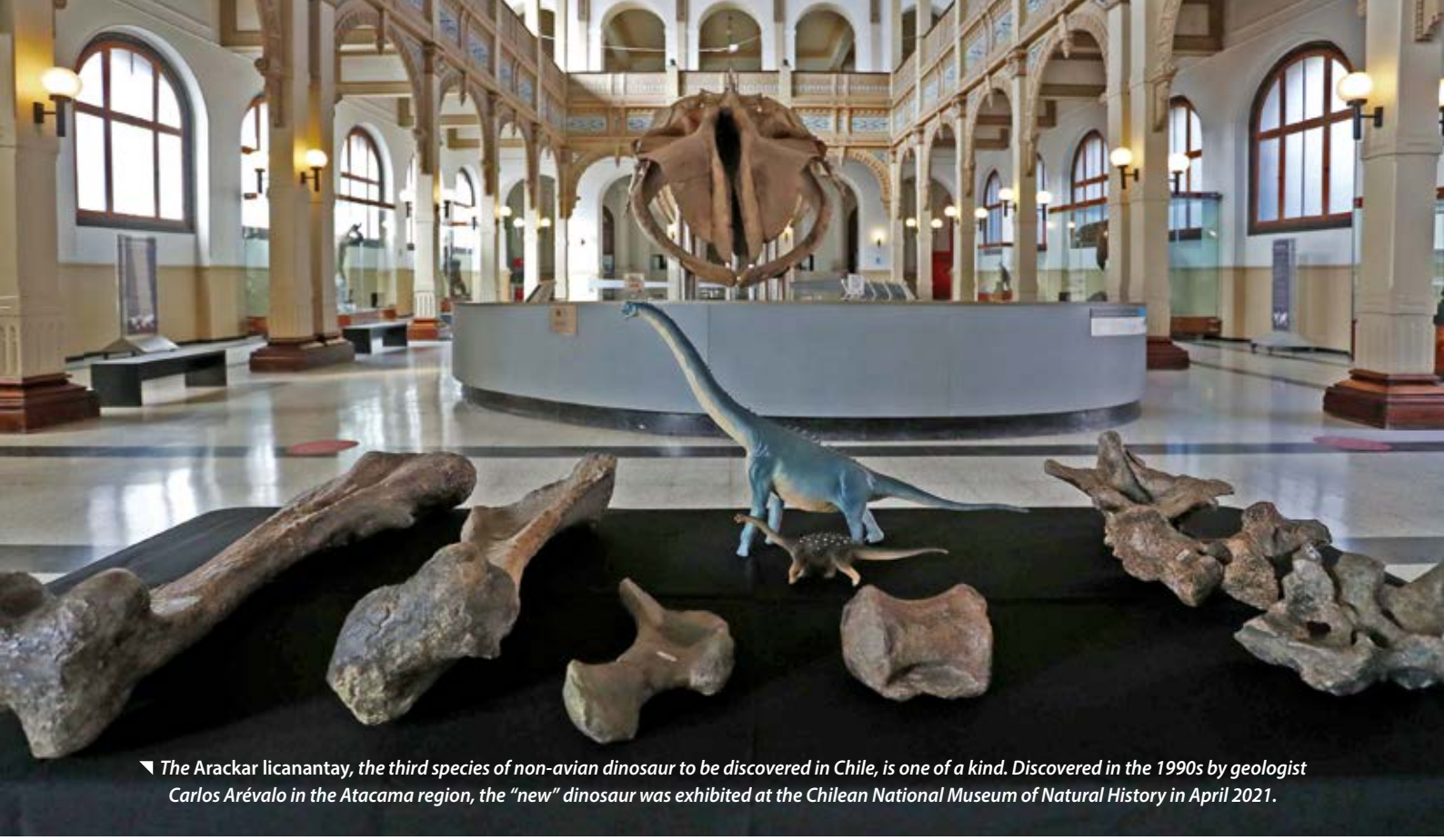
## **Serial** discoveries

A 98 million-year-old fossil excavated in the Neuquén River Valley in Argentina may belong to the largest dinosaur ever to walk the earth, according to a study in the journal *Cretaceous Research*, published in January 2021.

Researchers first started unearthing the fossilized bones of a gigantic sauropod in 2012. Though the skeleton is far from complete, experts believe it could be even bigger than the *Patagotitan*, the "Titan of Patagonia" – which at 122 feet long and nearly seventy tons, is the largest dinosaur known to date. This group of long-necked sauropods were found all over the world, but some of the last representatives lived in Latin America, where they evolved into giants.

Palaeontologists, who have unearthed twenty-four vertebrae and elements from its pelvis and pectoral girdle, are not certain whether the gigantic bones belong to a known species or to a gigantic specimen of a dinosaur we already know about.

In March 2021, the National University of San Luis, Argentina, announced the discovery of *Llukalkan aliocranianus*, a giant carnivore that roamed present-day Argentina about 80 million years ago. Then, in April 2021, the National Museum of Natural History in Santiago, presented *Arackar licanantay*, a titanosaur over twenty feet long that lived 66 million years ago in Chile's Atacama Desert.



◥ *The* Arackar licanantay, *the third species of non-avian dinosaur to be discovered in Chile, is one of a kind. Discovered in the 1990s by geologist Carlos Arévalo in the Atacama region, the "new" dinosaur was exhibited at the Chilean National Museum of Natural History in April 2021.*

which analyse the structure of living tissue. Our knowledge of the locomotion and the bite of animals has also progressed, due to Finite Element Analysis (FEA) – a numerical calculation method that makes it possible, among other things, to simulate mechanical behaviour.

● ***Has the Covid-19 pandemic had an impact on palaeontological research in Latin America?***

The global health context is a challenge for any researcher who has to carry out field and laboratory work. Many of the teams have had their field visits cancelled because international participants were unable to attend, because funding has been suspended – or because many of the institutions that financially supported their work have had to allocate their budgets to pandemic control tasks.

In addition, museums and scientific institutions have also closed their doors, making collections that contain the fossils to be analysed, inaccessible. Likewise, palaeontological conferences have had to reformulate their systems, and have been held remotely – limiting exchanges between specialists to mere recorded presentations. Feedback and discussion that are fundamental to science have been lost. I guess, like any scientist, I long for the time when we can meet our colleagues again, and have access to our study materials.

● ***If a research department, like the one you work in, were to draw up a "dream list" of resources and capabilities for the next five years, what would you ask for?***

From my point of view, the needs of any research core are basically the same: funding, willingness, and well-trained teams. A team cannot do its work – no matter how deeply it desires to revolutionize national or regional palaeontology – if it does not have institutions that endorse and support its projects.

Likewise, often the lack of knowledge of some of the local evaluators of palaeontological research proposals means that they are not evaluated positively. And that, in the end, means that there are some lines of research that cannot be carried out – in spite of the fact that they are extremely interesting at the global level.

Finally, in Latin America, the shortage of specialists in South American countries has slowed down the development of this field. Fortunately, these colleagues are beginning to train new scientists locally, so that in five to ten years, there could be an explosion of great international relevance. It would be critical to be able to support this human development with high-level equipment that does not exist in the region – or has not been certified at the international level, and the results of which therefore, are not accepted by part of the scientific community.

In spite of everything, palaeontology is a booming discipline in Latin America. Several sites are currently being studied, particularly in Argentina, in the Neuquén region, or in Chile, where a dinosaur footprint site is being studied in the area of Termas del Flaco, in the Chilean Andes. ■

© Stefano De Luca

◥ *Miriam Pérez de los Ríos (in the foreground) excavating at the 10 million-year-old site in Rudabànya, Hungary, where the remains of Miocene apes have been found.*

# Journalism:
## A dangerous profession

Attacks, intimidation, and even murder. Journalists across the world face serious risks and threats every day, just for doing their jobs – reporting the news and bringing information to the public.

**Linda Klaassen**

UNESCO

Over the past decade, a journalist has been killed every four days on average. Each year since 2016, more journalists have been killed outside of conflict zones than in countries currently experiencing armed conflict. A total of eighty-six killings of journalists worldwide have been reported between 2020 and the end of June 2021.

Impunity for crimes against journalists continues to prevail, with nine of ten killings remaining unpunished. The year 2020 saw a slight improvement, however, with thirteen per cent of cases worldwide reported as resolved, compared to twelve per cent in 2019, and eleven per cent in 2018. In many cases, impunity results from bottlenecks within the justice system itself.

While fewer women journalists are among the victims of fatal attacks, women are particularly targeted by offline and online gender-based threats and harassment. These attacks have increased significantly in recent years. Women journalists have identified political leaders, extremist networks and partisan media as some of the biggest instigators and amplifiers of online violence against women, according to the UNESCO discussion paper *The Chilling: Global trends in online violence against women journalists*, 2021, based on a major interdisciplinary study produced by the International Center for Journalists (ICFJ).

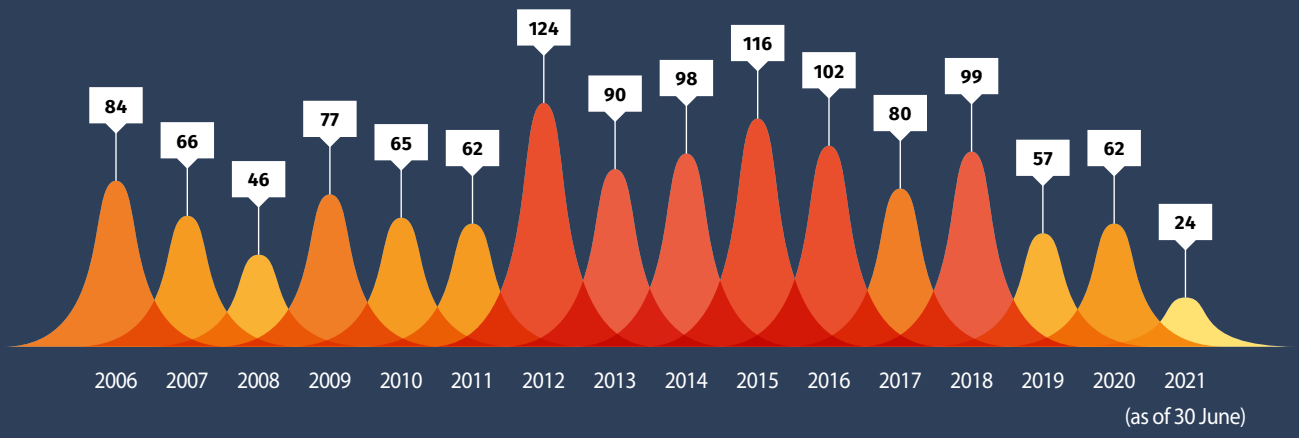
In the context of the Covid-19 pandemic, media workers around the world have also been subject to harassment, persecution and detention as a result of their work to keep citizens informed about the health crisis.

This section is published to mark the International Day to End Impunity for Crimes against Journalists, 2 November.

Source: *UNESCO and the UNESCO Director-General's Report on the Safety of Journalists and the Danger of Impunity, 2020.*

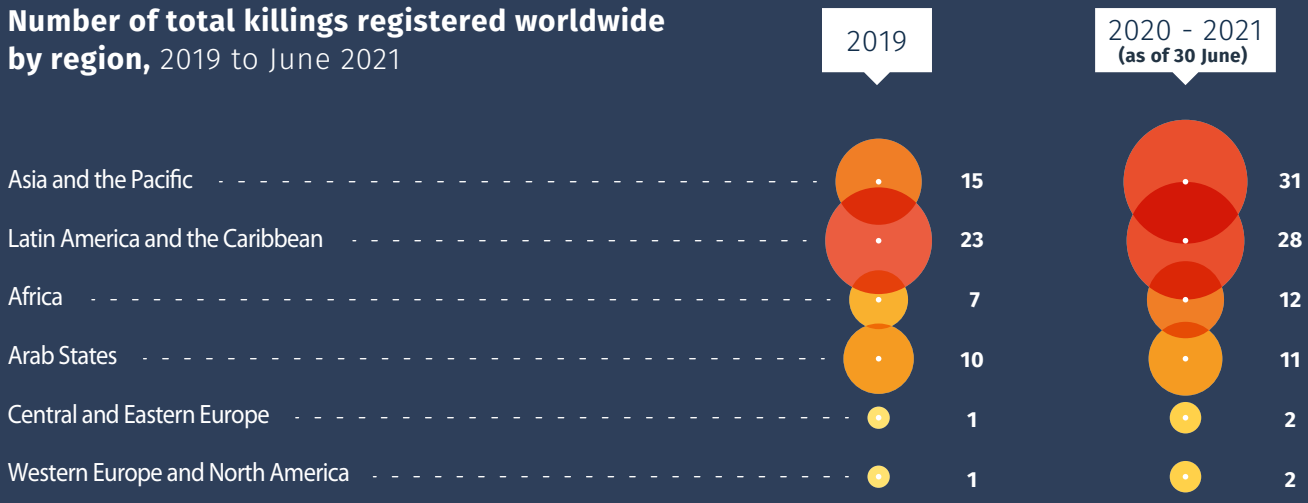
## JOURNALIST KILLINGS WORLDWIDE, IN FIGURES

**Number of journalists killed,** 2006 to June 2021



# **WHERE** ARE JOURNALISTS MOST AT RISK?

## **Number of total killings registered worldwide by region,** 2019 to June 2021



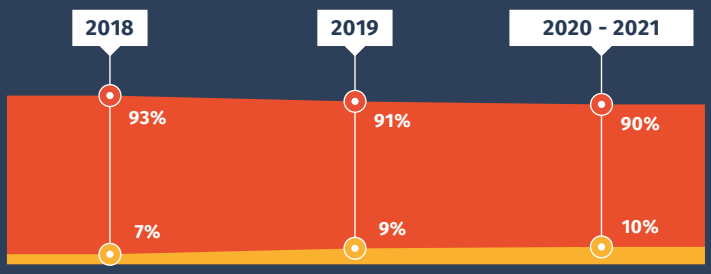

Source: UNESCO and the *UNESCO Director-General's Report on the Safety of Journalists and the Danger of Impunity*, 2020

## **Number of killings registered by country,** 2018-2019

Source: UNESCO and the *UNESCO Director-General's Report on the Safety of Journalists and the Danger of Impunity*, 2020

# **WHO** IS BEING KILLED AND IN WHAT CONTEXT?

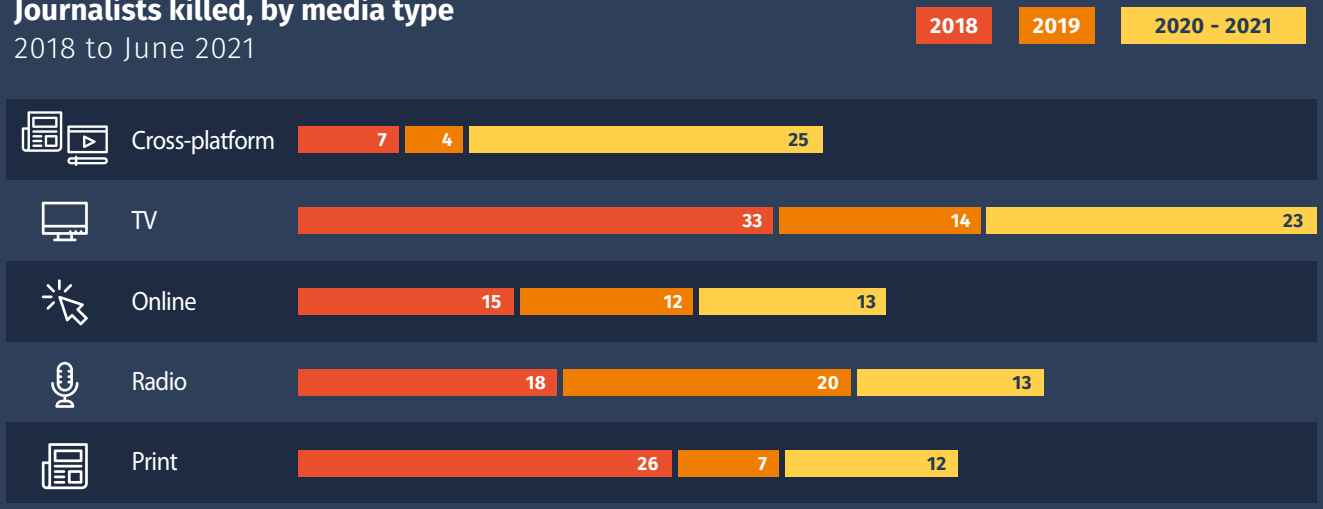
**Percentage of men and women among journalists killed,** 2018 to 2021 (as of 30 June)



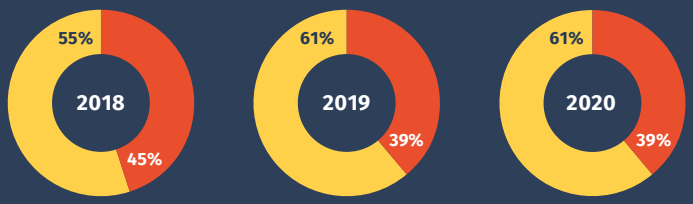

Men

Women

**Journalists killed, by media type**
2018 to June 2021



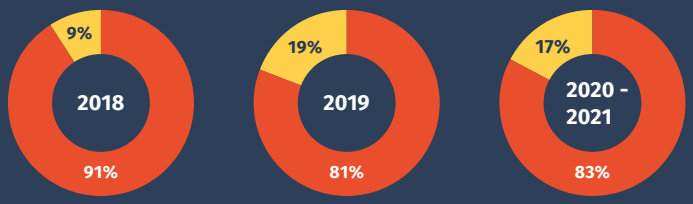

**Percentage of journalists killed in countries currently experiencing armed conflict versus other countries,** 2018-2020




Armed conflict

No armed conflict

**Killings of staff or freelance journalists**
2018 to June 2021, in percentages




Staff

Freelance

**Killings of local and foreign journalists worldwide,** 2018 to June 2021

Local

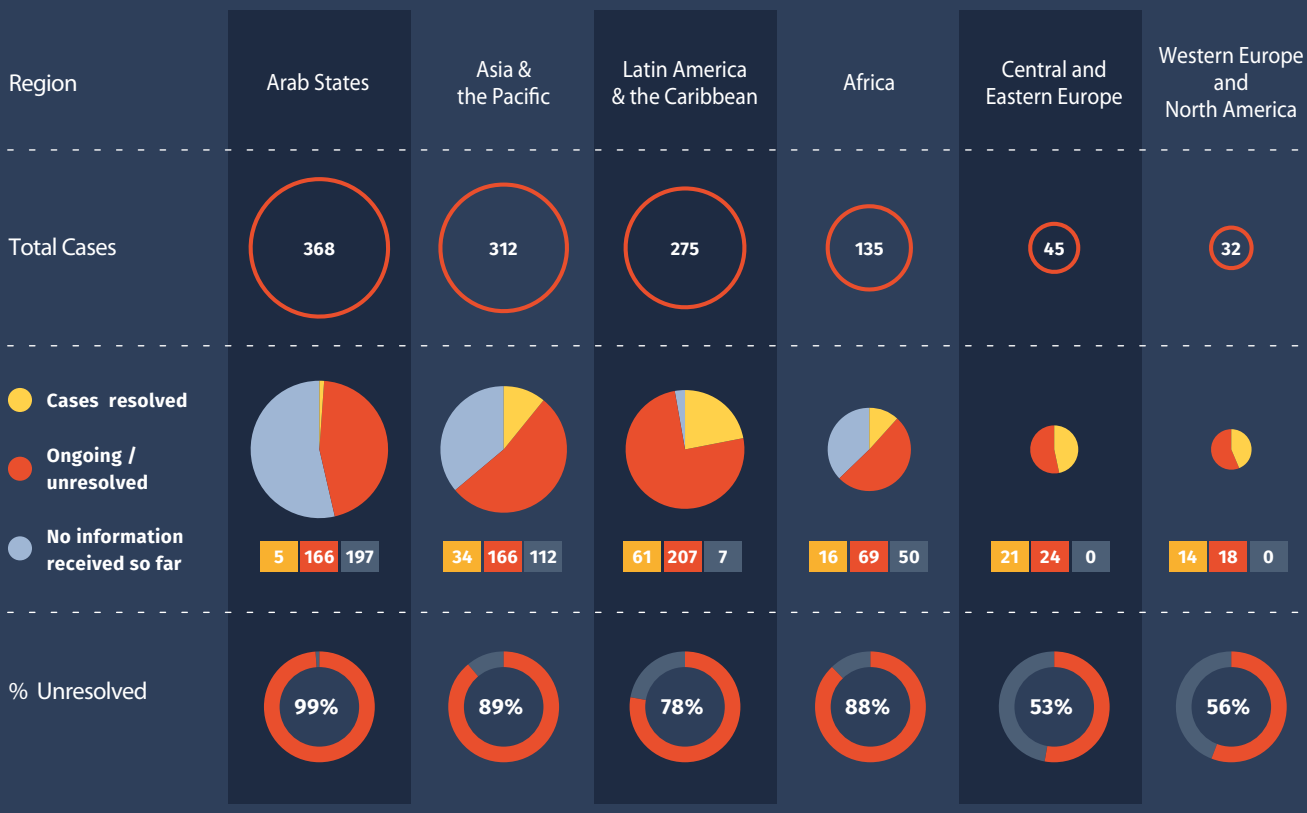
Foreign

Source: UNESCO and the *UNESCO Director-General's Report on the Safety of Journalists and the Danger of Impunity*, 2020

# **WHAT** ARE THE LEGAL CONSEQUENCES?

**Status of inquiries into killings of journalists,** 2006 to 2019, in percentages

**Status of judicial inquiries into killings of journalists per region,** 2006 to 2019




# **WOMEN** AND ONLINE VIOLENCE

Out of the 901 journalists and media workers – 714* of which identified as women – taking part in a survey for the 2021 UNESCO discussion paper *The Chilling: Global trends in online violence against women journalists:*

**73%** had experienced **online violence** in the course of their work

**25%** had received threats of **physical violence**

**18%** had been threatened with **sexual violence**

**13%** had received threats of violence **against those close to them,** including children and infants

**20%** have been **attacked** offline in connection with online violence they have experienced

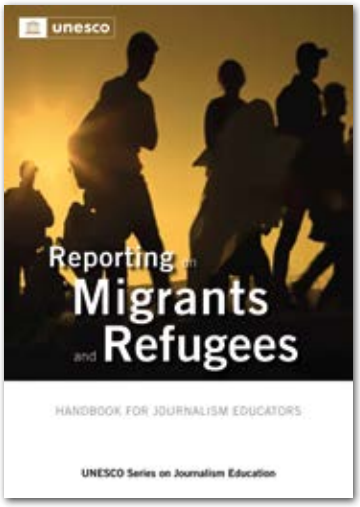
**30%** have **self-censored on social media** according to the level of online violence they experience

**25%** said they had reported **online violence** incidents to their employers

*The survey is non-representative, and all results represented are a proportion of this sample.

Source: *The Chilling: Global trends in online violence against women journalists, Research Discussion Paper,* UNESCO, 2021

# New publications




## Reporting on Migrants and Refugees

### Handbook for journalism educators

**ISBN 978-92-3-100456-8**
**304 pp, 210 x 297 mm, PDF**
**Publication available on**
***https://unesdoc.unesco.org***

This handbook helps journalism educators to address migration and refugee matters, one of the major challenges of the twenty-first century. Through a set of thirteen modules, educators are provided with a comprehensive curriculum, covering different aspects of training – including analysis, research, presentation, and the ethics of migration coverage.

The guide is also useful for journalism students, who will learn that matters of migration and forced displacement involve human beings – making it crucial to ensure that accurate facts, reliable sources, ethical reporting and good practices are adhered to.

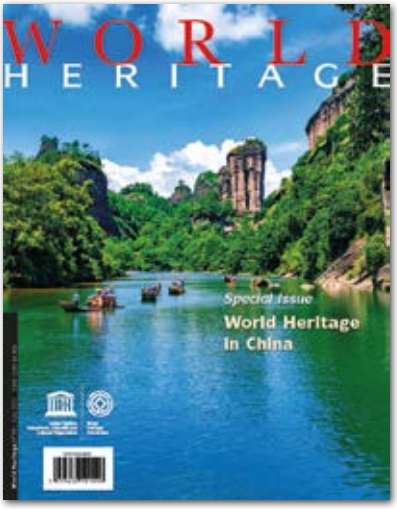
## World Heritage No.98

### Monitoring World Heritage from Space

**ISSN 1020-4202**
**EAN 3059630101967**
**72 pp., 220 x 280 mm, paperback, €7.50**
**UNESCO Publishing/Publishing for Development Ltd.**

Remote sensing, or using technology to gather information remotely about an area, is a routine way of assessing potential damage to cultural heritage sites or evaluating natural areas. Satellite imagery analysis is an important component of this.

In this issue, we discover how collaborations with agencies such as the International Centre on Space Technologies for Natural and Cultural Heritage (HIST), under the auspices of UNESCO; the European Space Agency (ESA) and the United Nations Institute for Training and Research (UNITAR), allow experts to monitor where sites have been damaged or need protection most.




## World Heritage No.99

### World Heritage in China (Special issue)

**ISSN 1020-4202**
**EAN 3059630101967**
**120 pp., 220 x 280 mm, paperback, €7.50**
**UNESCO Publishing/Publishing for Development Ltd.**

The 44th session of the World Heritage Committee (WHC) was held in Fuzhou, China, and online, from 16 to 31 July 2021.

At its annual sessions, the WHC makes decisions on whether a property will be inscribed on the World Heritage List. It also examines reports on the state of conservation of inscribed properties, and asks States Parties to take action when properties are not being properly managed. The Committee also decides on the inscription on, or removal of, properties from the List of World Heritage in Danger.

This issue of *World Heritage* presents the extraordinary variety of cultural and natural sites in China. Approaches used to manage this vast array of heritage – such as case studies and educational activities – are explored.

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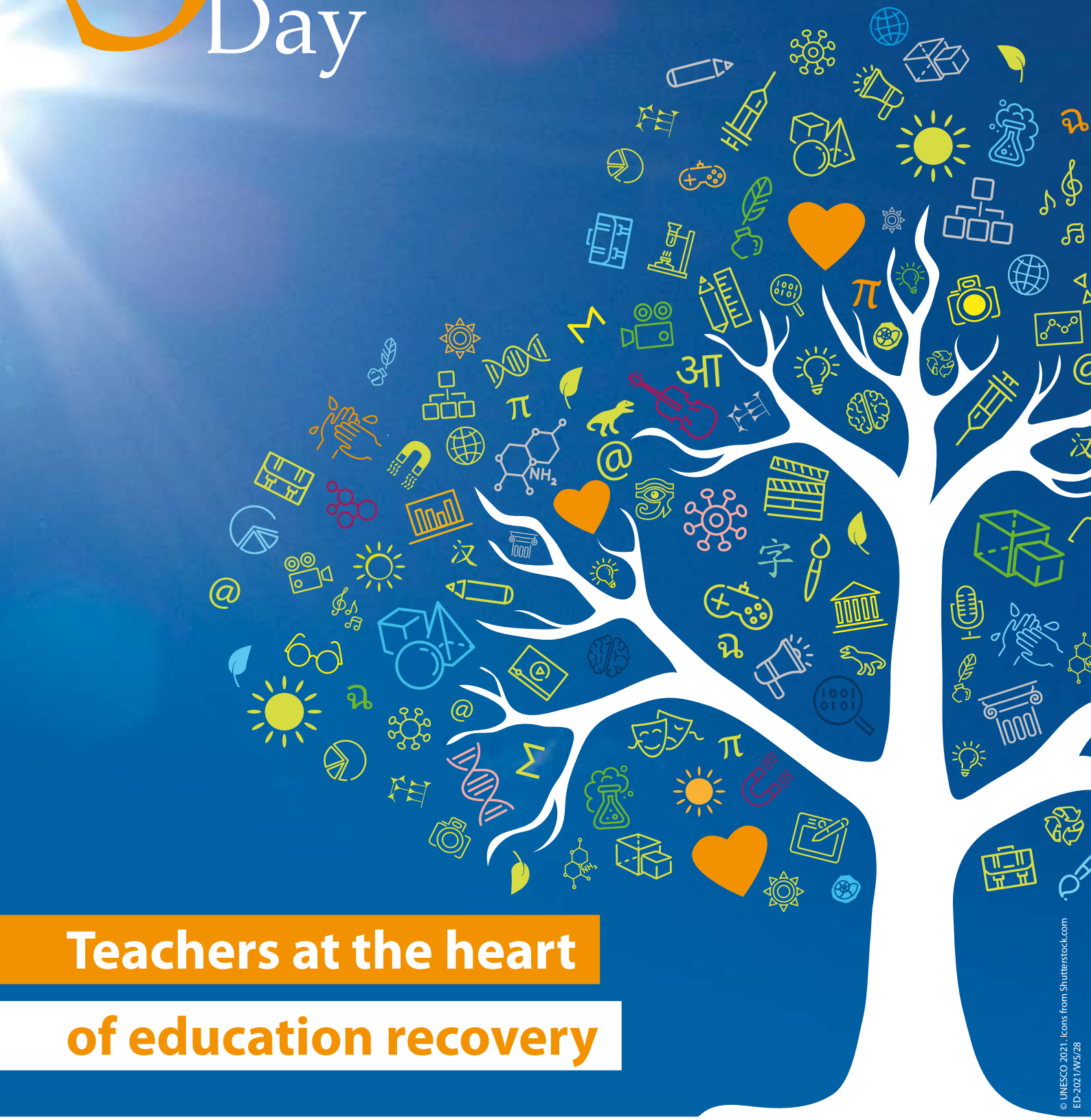
5 oct 2021

# World Teachers' Day



## Teachers at the heart of education recovery

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